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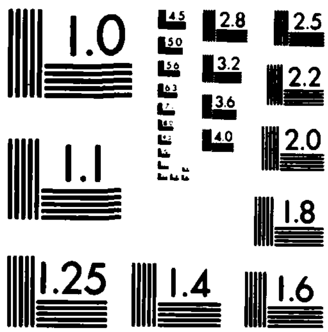

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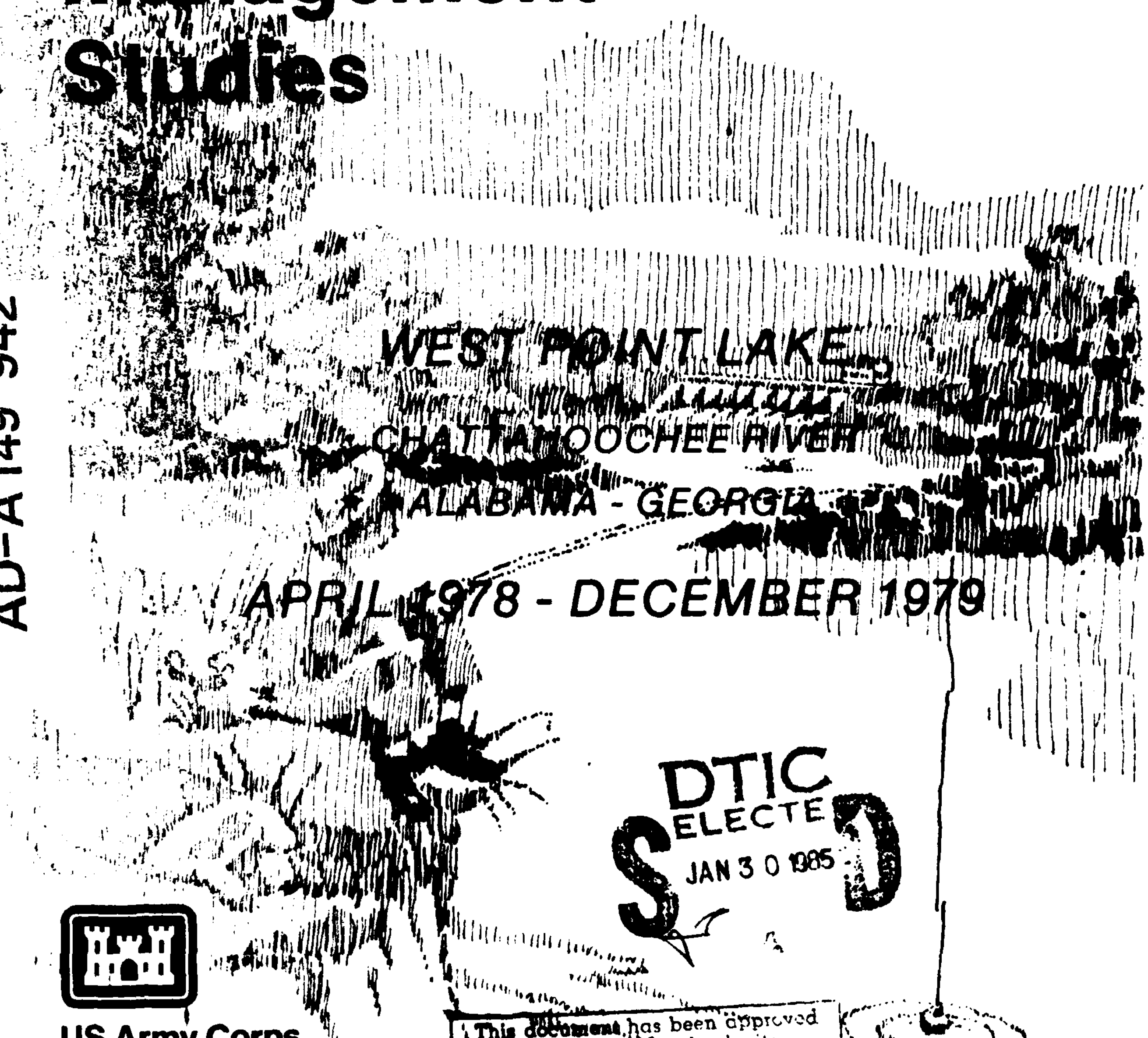
Water Quality Management Studies



WEST POINT LAKE
CHATTAHOOCHEE RIVER
ALABAMA - GEORGIA

APRIL 1978 - DECEMBER 1979

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1. REPORT NUMBER: COESAM/PDEE-84/004	2. GOVT ACCESSION NO.
3. RECIPIENT'S CATALOG NUMBER	
4. TITLE (and Subtitle): Water Quality Management Studies, West Point Lake, Chattahoochee River, Alabama - Georgia	5. TYPE OF REPORT & PERIOD COVERED: Final - April 1978 - December 1979
	6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s): Dean B. Radtke, Gary R. Buell, and Howard A. Perlman	8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS: U. S. Geological Survey, Water Resources Division, 6481 Peachtree Industrial Blvd., Suite B, Doraville, GA 30360	10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS: Dept. of the Army, Mobile District, Corps of Engineers, P. O. Box 2288, Mobile, AL 36628-0001	12. REPORT DATE: August 1984
	13. NUMBER OF PAGES: 537
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)	15. SECURITY CLASS. (of this report): Unclassified
	15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)

Approved for Public Release; Distribution Unlimited.

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

Water quality
Tissue analysis
Limnology
West Point Lake

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

West Point Reservoir is a multiple-purpose project on the Chattahoochee River about 95 kilometers downstream from Atlanta. Urbanization has placed large demands on the Chattahoochee River, and water quality below Atlanta was degraded, even before impoundment. Water-quality, bottom-sediment, and fish-tissue samples were collected from West Point Reservoir to determine whether water-quality problems have occurred subsequent to impoundment. Water-quality data were collected at 16 sampling stations within the reservoir and the river downstream of the dam on 17 data-collection trips

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Water-quality data show that severe hypolimnetic oxygen deficiency occurred in the reservoir after thermal stratification developed in the spring of both 1978 and 1979. This environment favored the release of iron, manganese, phosphorus, and other constituents from the sediments. Concentrations of dissolved iron and manganese in the hypolimnion at the dam pool stations ranged from 20 to 7,700 and 30 to 3,000 micrograms per liter, respectively. During these periods of thermal stratification, dissolved oxygen concentrations in the release water from West Point Reservoir consistently were below State of Georgia water-quality standards at the data-collection stations immediately below the reservoir. At these stations, dissolved-oxygen concentrations ranged from 2.0 to 6.3 milligrams per liter, having a mean of 3.8 milligrams per liter. The State of Georgia requires a minimum concentration of 4 milligrams per liter to meet water-quality standards. Hydrogen sulfide odor was also evident in the area immediately downstream from the dam during periods of thermal stratification.

The upper lentic, or middle section of the reservoir, showed the greatest biological activity in terms of plankton standing stock, adenosine triphosphate, and chlorophyll production. During thermal stratification periods, phytoplankton and zooplankton standing crops in this section of the reservoir ranged from 39,310 to 666,280 cells per milliliter and 6,000 to 283,740 organisms per liter, respectively. The dominant plankton groups in numbers per unit volume were blue-green algae and rotifers. Algal growth potential assay data showed that the availability of nutrients decreased in response to increases in phytoplankton concentrations from the upper to lower reaches of the reservoir. A maximum algal growth potential value (U.S. Geological Survey method) of 48.0 milligrams per liter was obtained at the uppermost data-collection station at Franklin, Georgia, on July 13, 1978, whereas a minimum value of 0.4 milligrams per liter was recorded at the dam pool station in August 1978. "Algal Assay Procedure: Bottle Test" (U.S. Environmental Protection Agency method) identified nitrogen as the primary growth limiting nutrient in the lotic section and phosphorus as the primary growth limiting nutrient in the lentic section during stratified periods. Also, phosphorus addition in the presence of excess nitrogen appeared to support growth to its maximum.

The highest measured concentrations of total iron, total manganese, total phosphorus, total organic carbon, and volatile solids in sediments occurred in the lentic section of the reservoir and at the tributary stations, where silts and clays constitute most of the bottom sediments. PCB's (polychlorinated biphenyls) and chlordane concentrations in the bottom sediments were also relatively high in this section of the reservoir. At these locations, PCB's and chlordane were detected at concentrations up to 740 micorgrams per kilogram and 210 micrograms per kilogram, respectively.

Young bullhead catfish and largemouth bass tissue samples analyzed for chlorinated hydrocarbons and heavy metals showed substantial amounts of chlordane and PCB's in both whole fish and fillet samples. Concentrations of PCB's and chlordane in fish tissue ranged from 19 to 3,800 micrograms per kilogram and 6.0 to 280 micrograms per kilogram, respectively.

ERRATA

Page 1: 3rd paragraph - Change 48.0 micrograms per liter to 48.0 milligrams per liter and 0.4 micrograms per liter to 0.4 milligrams per liter.

Page 49: Algal growth potential - change ug/L to mg/L in both occurrences.

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WATER QUALITY MANAGEMENT STUDIES

WEST POINT LAKE
CHATTAHOOCHEE RIVER
ALABAMA-GEORGIA
APRIL 1978-DECEMBER 1979

BY

Dean B. Radtke, Gary R. Buel and Howard A. Perlman
U. S. Geological Survey
Doraville, Georgia

FOR

U. S. Army Corps of Engineers
Environmental Quality Section
P. O. Box 2288
Mobile, Alabama 36628-0001

August 1984

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ILLUSTRATIONS

TABLES

INTERNATIONAL SYSTEMS UNITS

The following factors may be used to convert International Systems of Units (SI) published herein to the inch-pound units.

Divide SI unit	By	To obtain inch-pound unit
	Length	
micrometer (um)	25.4×10^3	inch
millimeter (mm)	25.4	inch
meter (m)	0.3048	foot
kilometer (km)	1.609	mile
	Area	
square meter (m^2)	4.05×10^3	acre
hectare (ha)	0.4047	acre
square kilometer (km^2)	0.004047	acre
square kilometer (km^2)	2.590	square mile
	Volume	
milliliter (mL)	3.78×10^3	gallon
liter (L)	3.785	gallon
cubic meter (m^3)	0.003785	gallon
cubic meter (m^3)	0.02832	cubic foot
cubic hectometer (hm^3)	0.001233	acre-foot
	Flow	
cubic meter per second (m^3/s)	0.02832	cubic foot per second
	Mass	
microgram (ug)	28.3×10^6	ounce
milligram (mg)	28.3×10^3	ounce
gram (g)	28.35	ounce
gram (g)	453.59	pound
kilogram (kg)	907.2	ton (short, 2,000 pounds)

Temperature

degrees Celsius (°C) = (degrees Fahrenheit - 32)/1.8

National Geodetic Vertical Datum of 1929 (NGVD of 1929): A geodetic datum derived from a general adjustment of the first-order level nets of both the United States and Canada, formerly called mean sea level. NGVD of 1929 is referred to as sea level in this report.

ABSTRACT

West Point Reservoir is a ~~multiple-purpose~~ project on the Chattahoochee River about 95 kilometers downstream from Atlanta. Urbanization has placed large demands on the Chattahoochee River, and water quality below Atlanta was degraded, even before impoundment. Water-quality, bottom-sediment, and fish-tissue samples were collected from ~~West Point~~ Reservoir to determine whether water-quality problems have occurred subsequent to impoundment. Water-quality data were collected at 16 sampling stations within the reservoir and the river downstream of the dam on 17 data-collection trips between April 1978 and December 1979.

Water-quality data show that severe hypolimnetic oxygen deficiency occurred in the reservoir after thermal stratification developed in the spring of both 1978 and 1979. This environment favored the release of iron, manganese, phosphorus, and other constituents from the sediments. Concentrations of dissolved iron and manganese in the hypolimnion at the dam pool stations ranged from 20 to 7,700 and 30 to 3,000 micrograms per liter, respectively. During these periods of thermal stratification, dissolved-oxygen concentrations in the release water from West Point Reservoir consistently were below State of Georgia water-quality standards at the data-collection stations immediately below the reservoir. At these stations, dissolved-oxygen concentrations ranged from 2.0 to 6.3 milligrams per liter, having a mean of 3.8 milligrams per liter. The State of Georgia requires a minimum concentration of 4 milligrams per liter to meet water-quality standards. Hydrogen sulfide odor was also evident in the area immediately downstream from the dam during periods of thermal stratification.

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The highest measured concentrations of total iron, total manganese, total phosphorus, total organic carbon, and volatile solids in sediments occurred in the lentic section of the reservoir and at the tributary stations, where silts and clays constitute most of the bottom sediments. PCB's (polychlorinated biphenyls) and chlordane concentrations in the bottom sediments were also relatively high in this section of the reservoir. At these locations, PCB's and chlordane were detected at concentrations up to 740 micrograms per kilogram and 210 micrograms per kilogram, respectively.

Young bullhead catfish and largemouth bass tissue samples analyzed for chlorinated hydrocarbons and heavy metals showed substantial amounts of chlordane and PCB's in both whole fish and fillet samples. Concentrations of PCB's and chlordane in fish tissue ranged from 19 to 3,800 micrograms per kilogram and 6.0 to 280 micrograms per kilogram, respectively.

INTRODUCTION

West Point Reservoir is a multiple-purpose project designed to provide flood control, power, recreation, fish and wildlife enhancement, and streamflow regulation for downstream navigation. Construction of the reservoir was authorized by the United States Flood Control Act of 1962. West Point Dam is on the Chattahoochee River, 5.1 km north of West Point, Ga., and 112 river km downstream from Atlanta. Impoundment began in October 1974 and the reservoir filled to normal pool elevation in June of 1975.

The problems associated with water quality in the study area, as pointed out by Cherry and others (1978), are for the most part related to urbanization in the Atlanta and LaGrange metropolitan areas. This urbanization has created large demands on the Chattahoochee River, not only as a major water supply, but as a transporter of municipal and industrial wastes. As a result, the water quality in the river below Atlanta was in a degraded condition, even before impoundment. Excessive organic, nutrient, and pathogenic organism loadings could cause accelerated eutrophication, and could spoil the recreational potential of the proposed reservoir. For this reason concern was expressed about the potential effects these metropolitan areas would have on the reservoir, even prior to the dam's closure.

Objectives

The objectives of this study were to: (1) document general post-impoundment water-quality conditions of the reservoir, (2) establish baseline conditions for future comparisons, (3) identify water-quality environmental problems, (4) collect data to develop guidance for reservoir control and discharge water-quality relations, (5) study special problems and collect data necessary to develop criteria for solutions of such problems, and (6) collect data that would provide an adequate data base and understanding of project conditions to facilitate coordination with State agencies in implementing watershed pollution control.

The purpose of this report is to present and interpret the limnological data collected from April 1978 through December 1979, and make recommendations accordingly.

Scope

West Point Reservoir, in west-central Georgia, is in an 8,944 km^2 drainage basin of the upper Chattahoochee River (fig. 1). The study area encompassed the Chattahoochee River from Franklin, Ga., to Langdale, Ala., (fig. 2) approximately 69 km in river length.

The approach used to meet the stated objectives was to collect and analyze data and prepare a report concerning water, sediments, and biological

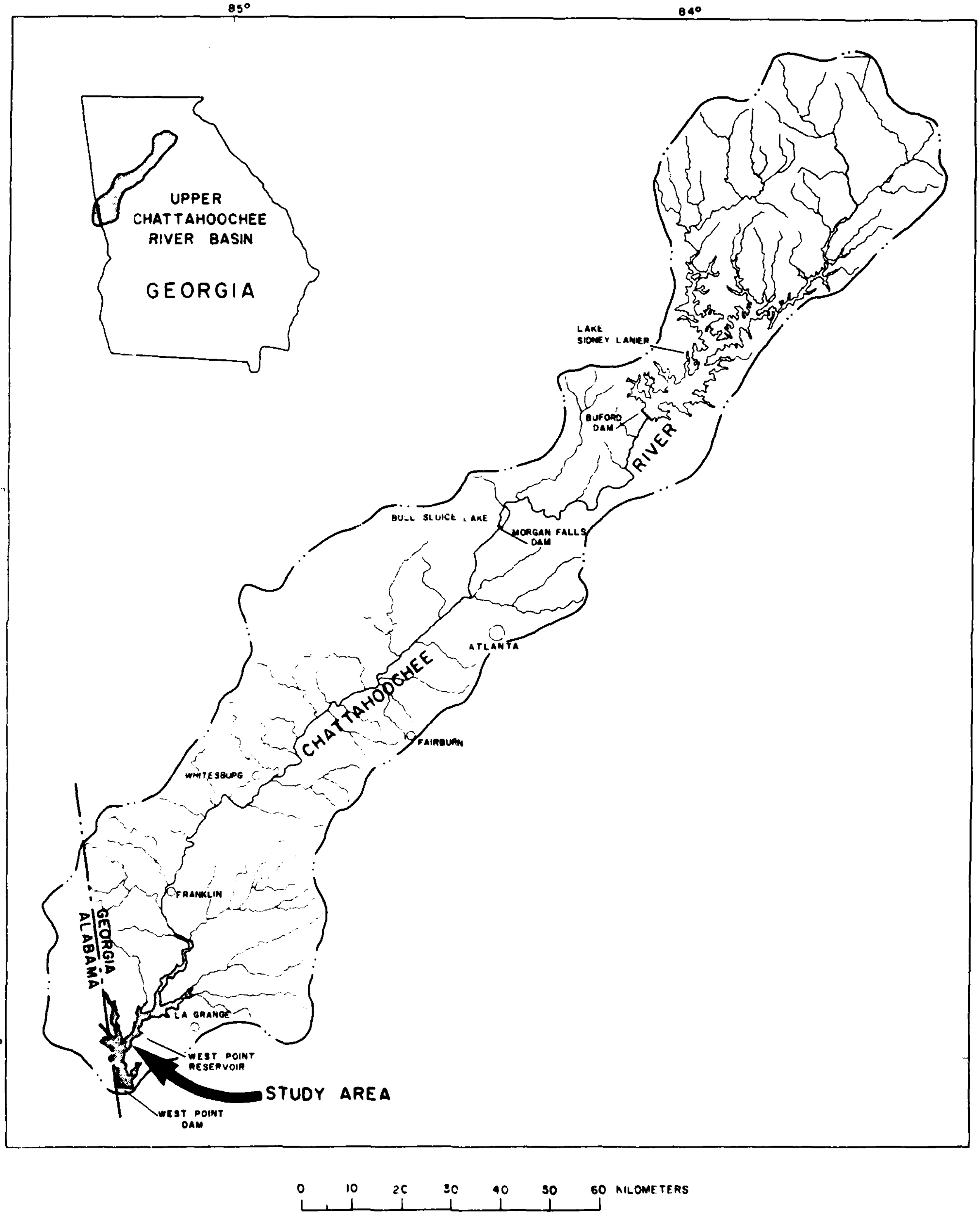


Figure 1.—Location of study area within the upper Chattahoochee River basin.

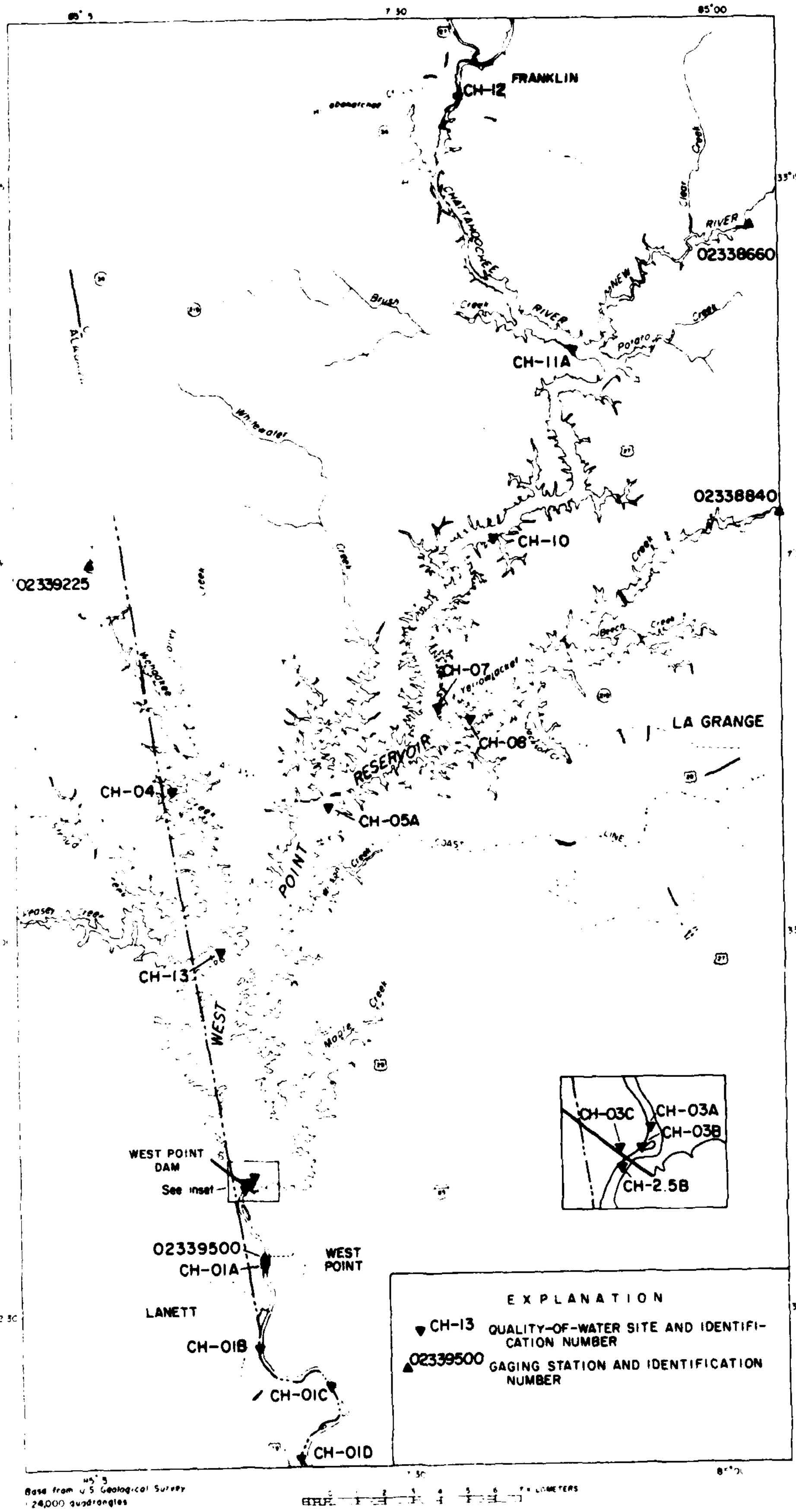


FIGURE 2—West Point Reservoir study area and location of the principal data-collection stations

quality of West Point Reservoir and its environs. The data analyzed included water (physical and chemical parameters), sediment (physical and chemical parameters), bacteriological parameters, biological (standing stock and biomass parameters), and fish tissue chemical parameters.

In order to determine river and reservoir water-quality conditions during thermally stratified and unstratified periods, water-quality sampling of the reservoir and the river downstream from the dam began in April 1978 and ended in December 1979.

Previous Studies

Schneider and others (1972) cited the potential for accelerated eutrophication and its associated nuisance problems in West Point Reservoir. This report also stated that problems associated with thermal stratification could occur and that potential problems of low dissolved-oxygen concentrations, hydrogen sulfide odors, and high levels of dissolved iron and dissolved manganese could interfere with water-supply users downstream from the dam. The authors recommended the use of preventive measures to preclude potential water-quality problems associated with these conditions.

As a result of these concerns, Vick and others (1976) conducted the first of many postimpoundment studies. This report noted the occurrence of acute dissolved iron and dissolved manganese problems during periods of thermal stratification. On the basis of AGP-EPA (algal growth potential, U.S. Environmental Protection Agency method) assays and phosphorus-based trophic state models, the authors predicted that the reservoir would become highly eutrophic.

In 1975, water-quality analyses were made by the Georgia Department of Natural Resources (1976) to provide information about possible water-quality criteria violations and nuisance conditions. Some of the conclusions of this study were as follows: (1) nuisance algal conditions were not observed; (2) low dissolved-oxygen concentrations and, at times, anaerobic conditions in the hypolimnion caused serious violations immediately below West Point Dam during the thermal stratification period; (3) the headwater area of the reservoir was of poor quality and was not acceptable for whole-body contact recreational activities; (4) water quality was better in the downstream part of the reservoir; and (5) overall, the lake was classified as highly eutrophic.

During the period of April 1975 to June 1978, the U.S. Geological Survey conducted a river-quality assessment of the upper Chattahoochee River basin in Georgia (Cherry and others, 1978). The study showed that urbanization and reservoir releases had substantial effects on the quality of water in the Chattahoochee River. Point and nonpoint sources from the metropolitan Atlanta area contributed most of the dissolved and suspended loads to the river and, subsequently, to West Point Reservoir. These constituent loads increased with urbanization within the basin. Urbanization, therefore, had created large demands on West Point Reservoir not only as the major sources of water for LaGrange, but also as a major transporter of wastes from Atlanta and LaGrange.

Stamer and others (1978) attempted to estimate the effects of these loads from point and nonpoint sources on the potential eutrophication of West Point Reservoir. Analysis of data collected from November 1975 to

to September 1976 showed that the availability of nutrients, as measured by AGP-USGS (algal growth potential, U.S. Geological Survey method) assays, decreased in response to increased phytoplankton concentrations from the upper to lower reaches of the reservoir. Dissolved orthophosphate was the nutrient limiting phytoplankton growth when temperatures were greater than 26°C. The authors predicted that in the year 2000, phytoplankton concentrations in the reservoir would probably not exceed 700,000 cells/mL during extended summer low-flow periods if point source concentrations of phosphorus are not greater than about 1 mg/L.

Several reports have been published in conjunction with the Auburn University Department of Fisheries and Allied Aquacultures on a series of fisheries and limnology studies of West Point Reservoir and its environs. Preimpoundment fisheries information has been reported by Chookajorn (1973), Hiranvat (1973), Shelton and Davis (1977), Lawrence (1975), and Gilbert (1969). These studies revealed the presence of 53 species of fish representing 14 families. Three of these species were considered endemic to the Chattahoochee River basin, but not endangered or threatened within the basin. It was also found that preimpoundment fish standing stocks were typical when compared with other southeastern streams.

Water-quality and biological data gathered during two consecutive postimpoundment studies by Davies and others (1979; 1980) indicated that West Point Reservoir was mesoeutrophic, and maintained sufficient aquatic production to sustain and support a relatively high fish biomass (350 kg/ha). It was also noted that 16 of the original species of fish present during preimpoundment were not found during postimpoundment studies. It was speculated that eutrophic conditions were not reached due, in part, to insufficient carbon loading into the reservoir.

Acknowledgments

We wish to acknowledge the aid and cooperation of George Wallace, Resource Manager of West Point Reservoir, and Daniel Mooney, formerly of the Mobile District, U.S. Army Corps of Engineers. James H. King of Ferguson and Williams, Inc. also provided valuable assistance and cooperation throughout the data-collection period.

Our special thanks go to the staff at the National Water Quality Laboratory, Doraville, Ga., for their extra effort and patience in dealing with the special analytical needs of the West Point study.

The authors also acknowledge the helpful suggestions of Charles W. Cressler, I. Jean Roberts, Robert A. Lidwin, and James B. McConnell. David W. Parker provided invaluable assistance with computer programming, especially with graphic presentations. Janet Groseclose edited and typed the manuscript and Willis Hester drafted the illustrations.

DESCRIPTION OF THE STUDY AREA

West Point Reservoir is impounded by a U.S. Army Corps of Engineers gravity-type dam 2,211 m long and 29.6 m high. The reservoir has a surface area of 10,360 ha, a volume of 605 hm^3, and a shoreline of 840 km at normal pool elevation of 194 m above sea level (U.S. Army Corps of Engineers, 1975).

The upper Chattahoochee River originates on the southern slopes of the Blue Ridge Mountains in northeast Georgia and flows generally southwestward through the Atlanta area to West Point Reservoir at the Georgia-Alabama State line. The drainage area of the Chattahoochee River upstream of West Point Dam is 8,944 km^2 and it lies entirely within the Piedmont physiographic province.

The Piedmont province, in the vicinity of the study area, is a nearly level plateau whose generally smooth surface lies 244 to 275 m above sea level. Southwestward it descends to 152 m at the margin of the Coastal Plain. Except in the Pine Mountain area, the plateau is almost unbroken by isolated ridges. It is not deeply dissected, except along the valley of the Chattahoochee River.

Metamorphic and igneous rocks underlie the study area and generally occupy broad belts. The comparatively uniform lithology is reflected in the uniform topography.

The climate of the study area is temperate but humid, with mean annual temperatures of 16° to 19°C and an average annual rainfall of 1,200 to 1,350 mm per year. As a result of this rainfall, mean annual runoff in the study area is high, ranging from 250 to 1,000 mm. Major flood-producing storms usually occur in winter or spring and the lowest streamflows generally occur in late autumn. The frequency, severity, and duration of both higher and lower flows have been affected for many years by flow regulation by hydroelectric facilities and more recently by Buford Dam, which regulates the runoff from the upper one-third of the Chattahoochee River basin.

Streamflow into the reservoir is, therefore, predominantly dependent upon rainfall and regulation by hydroelectric generating facilities. The Chattahoochee River, which is the principal tributary to West Point Reservoir, contributes approximately 96 percent of the mean annual water loading. Minor tributaries to West Point Reservoir include Yellowjacket, Wehadkee, Whitewater, Potato, and Maple Creeks and New River.

Land in the study area is about 79 percent forested, 17 percent rural, and 4 percent urban. Urban land includes residential, commercial, and industrial development. Rural land includes cropland, pastureland, and feedlot operations. Forested land includes deciduous and coniferous forests and wetlands.

The original vegetation of the study area consisted primarily of hardwood forests of the oak-hickory community. However, because of extensive intervention by man for urban and agricultural uses, it is difficult to find any established vegetation pattern today. Remnants of the original forest can be found in isolated areas too difficult to farm or develop, such as steep slopes and ravines.

DATA COLLECTION

Sixteen data-collection stations were established on the Chattahoochee River and its principal tributaries between Franklin, Ga., and Langdale, Ala. Eight water-quality data-collection stations were established in the main river channel; three stations were in the tributaries, and five stations were located downstream from West Point Dam. A map of the reservoir and the principal data-collection stations is presented in figure 2 and

descriptions of the principal station locations are provided in table 1. Throughout this report, U.S. Army Corps of Engineers station identification numbers are used for the sake of brevity.

In table 1, the reservoir stations were partitioned into lotic (flowing water, riverine) and lentic (still water, lacustrine). These terms describe the stations as they relate to ecologically important but different habitats. Later discussions will utilize these terms and describe their significance as they relate to West Point Reservoir. It is important to realize, however, that these descriptors are relative terms. The lotic and lentic environments within West Point Reservoir change both temporally and spatially with changes in the hydrologic conditions such as inflow-outflow discharge, and reservoir surface elevation. For example, if the reservoir surface elevation is low and a spate occurs, the entire reservoir would be described as being lotic in nature. Also, the demarcation between these two environments is not sharply defined. This transition zone (ecotone) can be variable and considerable in areal extent and commonly exhibits characteristics of the adjoining environments.

Three data-collection stations (CH-03A, CH-03B, and CH-03C) were situated near the dam in order to monitor the effects of an innundated coffer structure. (See inset, fig. 2.) During dam construction, the coffer structure was built to divert river water around the construction site. When dam construction was completed, the part of the coffer structure upstream from the powerhouse was not removed. This section of the coffer structure was left in place in the hope that the flow of poor quality hypolimnetic water through the penstocks would be impeded when the lake stratified. This structure, however, no longer exists (Harold Wallace, U.S. Army Corps of Engineers, oral commun., 1982).

Water-quality data were collected on 17 sampling trips between April 1978 and December 1979. Table 2 summarizes the parameters collected on each data-collection trip and table 3 summarizes parameters measured at each individual station. These tables are important, especially when referring to subsequent data tables and illustrations. For example, not all parameters were collected at all data-collection stations and not all stations listed were designated for sampling on each data-collection trip. The downstream river stations were visited twice each trip to make measurements and collect samples at minimum daily release and maximum daily release.

Pool elevations of West Point Reservoir, mean inflow-outflow discharges at time of collection, and the instantaneous discharges of the Chattahoochee River at West Point at the time of low-flow and high-flow sampling are presented in Appendix A-1. For Yellowjacket and Wehadkee Creeks and New River, inflow discharges are incomplete because gaging stations were not established until October 1978. Appendix A-2 figures illustrate the mean daily discharges at selected inflow-outflow sites for the duration of the study. Maximum, minimum, and mean temperatures at sampling times are presented in Appendix A-3, and the mean daily temperatures at inflow-outflow stations are illustrated in Appendix A-4 figures.

FIELD SAMPLING METHODOLOGY

Temperature, dissolved oxygen, pH, specific conductance, and oxidation-reduction potential were measured on site by using the Hydrolab

Table 1.--Principal data-collection stations in and downstream from West Point Reservoir

U.S. Geological Survey identification No.	U.S. Corps of Engineers identification No.	Environmental Protection Agency identification No.	River kilometer	Station description
Main channel reservoir stations (lotic environment)				
02338500	CH-12	121992	378.94	Chattahoochee River at U.S. Highway 27, at Franklin, Ga.
02338570	CH-11A	—	367.09	Chattahoochee River above New River, near Corinth, Ga.
02338710	CH-10	121960	355.02	Chattahoochee River at State Highway 219, near LaGrange, Ga.
Main channel reservoir stations (lentic environment)				
02338720	CH-07	121939	346.70	Chattahoochee River (city of LaGrange intake) near LaGrange, Ga.
02339190	CH-05A	121920	339.14	Chattahoochee River at State Highway 701, near Abbottsford, Ga.
02339382	CH-03A	—	324.45	Chattahoochee River above coffer structure, above West Point Dam
02339387	CH-03B	—	324.18	Chattahoochee River east of coffer structure, above West Point Dam
02339388	CH-03C	121913	324.08	Chattahoochee River below coffer structure, above West Point Dam
Tributary stations				
02339020	CH-08	121940	—	Yellowjacket Creek at Cameron Mill Road, near LaGrange, Ga.
02339350	CH-04	121918	—	Wehadkee Creek at State Highway 244, near Abbottsford, Ga.
02339362	CH-13	121915	—	Wehadkee Creek at State Highway 238, near Abbottsford, Ga.
Downstream river stations				
02339402	CH-2.5B	121912	323.96	Chattahoochee River below West Point Dam
02339500	CH-01A	121910-A	320.28	Chattahoochee River at West Point, Ga.
02339550	CH-01B	010020	317.59	Chattahoochee River (city of Lanett intake) at Lanett, Ala.
02339560	CH-01C	—	313.63	Chattahoochee River above junction of Long Cane Creek, near West Point, Ga.
02339780	CH-01D	—	310.25	Chattahoochee River at Langdale, Ala.

Table 2.--Parameters collected on each data-collection trip

Month and days	Apr. 9-18	Apr.- May 30-14	May- June 30-6	July 9-13	Aug. 13-18	Aug. 27-31	Oct. 16-19	Nov. 27-30	Jan. 22-24	Mar. 19-22	Apr.- May 30-5	June 11-15	July 23-27	Aug. 20-24	Sept. 16-20	Oct. 14-17	Dec. 9-[illegible]
Year	1978									1979							
Trip number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
I. Water sampling																	
A. On-site physical and chemical																	
Conductivity	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Dissolved oxygen	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Oxidation-reduction potential	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Percent light transmission	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
pH	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Secchi-disc visibility	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Temperature	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Turbidity	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
B. Physical and chemical																	
Alkalinity	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Calcium, total	X	—	—	—	—	X	—	—	—	—	—	—	—	—	—	—	—
Carbon, organic, dissolved	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Carbon, organic, total	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Carbon dioxide (calculated)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Chloride	X	—	—	—	—	X	—	—	—	—	—	—	—	—	—	—	—
Color	X	X	X	X	X	X	—	—	X	—	X	X	X	X	X	X	X
Iron, dissolved	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Iron, total	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Magnesium, total	X	—	—	—	—	X	—	—	—	—	—	—	—	—	—	—	—
Manganese, dissolved	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Manganese, total	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Nitrogen, ammonia, total	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	—
Nitrogen, Kjeldahl, total	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Nitrogen, inorganic, total (calculated)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Table 2. Parameters collected on each data-collection trip--Continued

Month and days	Apr. 9-18	Apr.-May 30-14	May-June 30-6	July 9-13	Aug. 13-18	Aug. 27-31	Oct. 16-19	Nov. 27-30	Jan. 22-24	Mar. 19-22	Apr.-May 30-5	June 11-15	July 23-27	Aug. 20-24	Sept. 16-20	Oct. 14-17	Dec. 9-14
Year	1978								1979								
Trip number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
B. Physical and chemical--Continued																	
Nitrogen, nitrite plus nitrate, total	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Nitrogen, organic, total (calculated)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Nitrogen, total (calculated)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Phosphorus, orthophosphate, dissolved	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Phosphorus, total	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Potassium, total	X	—	—	—	—	X	—	—	—	—	—	—	—	—	—	—	—
Residue, filterable, total	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Residue, nonfilterable, total	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sodium, total	X	—	—	—	—	X	—	—	—	—	—	—	—	—	—	—	—
Sulfate, dissolved	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sulfur, sulfide, total	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Zinc, total	X	X	X	X	X	X	—	—	—	—	—	—	—	—	—	—	—
C. Biological																	
Adenosine triphosphate	X	X	X	X	X	X	X	—	—	—	X	X	X	X	X	X	X
Algal growth potential	X	X	X	X	X	X	X	—	—	—	—	—	—	—	—	—	—
Benthic algae	—	—	—	—	—	X	—	—	—	—	—	—	—	—	—	—	—
Benthic invertebrates	X	X	X	X	X	X	—	—	—	—	—	—	—	—	—	—	—
Chlorophyll _a_ and _b_	X	X	X	X	X	X	X	—	—	—	X	X	X	X	X	X	X
Fecal coliform (F.C.)	X	X	X	X	X	X	—	—	—	—	X	X	X	X	X	X	X
Fecal streptococci (F.S.)	X	X	X	X	X	X	—	—	—	—	X	X	X	X	X	X	X
F.C./F.S. ratio (calculated)	X	X	X	X	X	X	—	—	—	—	X	X	X	X	X	X	X
Phytoplankton (identification and enumeration)	X	X	X	X	X	X	—	—	—	—	X	X	X	X	X	X	[illegible]

Table 2.--Parameters collected on each data-collection trip—Continued

Month and days	Apr. 9-18	Apr.-May 30-14	May-June 30-6	July 9-13	Aug. 13-18	Aug. 27-31	Oct. 16-19	Nov. 27-30	Jan. 22-24	Mar. 19-22	Apr.-May 30-5	June 11-15	July 23-27	Aug. 20-24	Sept. 16-20	Oct. 14-17	Dec. 9-1[illegible]
Year	1978								1979								
Trip number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
C. Biological--Continued																	
Seston (total suspended material)	X	X	X	X	X	X	—	—	—	—	X	X	X	X	X	X	X
Zooplankton (identification and enumeration)	X	X	X	X	X	X	—	—	—	—	X	X	X	X	X	X	X
II. Sediment samples																	
A. Particle size																	
B. Selected chemical																	
Carbon, organic, total	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—
Nitrogen, Kjeldahl, total	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—
Oil and grease	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—
Phosphorus, total	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—
Volatile solids	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—
C. Metals																	
Arsenic, total	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—
Cadmium, total	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—
Chromium, total	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—
Copper, total	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—
Iron, total	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—
Lead, total	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—
Manganese, total	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—
Mercury, total	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—
Nickel, total	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—
Zinc, total	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—
D. Chlorinated hydrocarbons																	
Aldrin	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—
BHC, total	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—
Chlordane	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—

Table 2.--Parameters collected on each data-collection trip--Continued

Month and days	Apr. 9-18	Apr.-May 30-14	May-June 30-6	July 9-13	Aug. 13-18	Aug. 27-31	Oct. 16-19	Nov. 27-30	Jan. 22-24	Mar. 19-22	Apr.-May 30-5	June 11-15	July 23-27	Aug. 20-24	Sept. 16-20	Oct. 14-17	Dec. 9-13
Year	1978								1979								
Trip number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
D. Chlorinated hydrocarbons—Continued																	
DDD	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—
DDE	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—
DDT	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—
Dieldrin	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—
Endo-sulfur sulphate	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—
Endrin	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—
Heptachlor	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—
Heptachlor epoxide	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—
Methoxychlor	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—
Mirex	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—
Perthane	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—
Polychlorinated biphenyls (PCB)	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—
Polychlorinated napthalenes (PCN)	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—
Toxaphene	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—
III. Fish tissue analyses																	
A. Metals																	
Arsenic, total	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—
Cadmium, total	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—
Chromium, total	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—
Lead, total	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—
Mercury, total	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—
Selenium, total	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—
Zinc, total	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—
B. Chlorinated hydrocarbons																	
Aldrin	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—
BHC, total	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—
Chlordane	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—
DDD	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—
DDE	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—

Table 2.--Parameters collected on each data-collection trip—Continued

Month and days	Apr. 9-18	Apr.-May 30-14	May-June 30-6	July 9-13	Aug. 13-18	Aug. 27-31	Oct. 16-19	Nov. 27-30	Jan. 22-24	Mar. 19-22	Apr.-May 30-5	June 11-15	July 23-27	Aug. 20-24	Sept. 16-20	Oct. 14-17	Dec. 9-13
Year				1978								1979					
Trip number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
B. Chlorinated hydrocarbons—Continued																	
DDT	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—
Dieldrin	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—
Endo-sulfur sulphate	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—
Endrin	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—
Heptachlor	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—
Heptachlor epoxide	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—
Perthane	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—
Polychlorinated biphenyls (PCB)	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—
Polychlorinated napthalenes (PCN)	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—
Toxaphene	—	—	—	—	—	X	—	—	—	—	—	—	—	X	—	—	—

Table 3.—Parameters and stations sampled during West Point Reservoir study

	Data-collection stations (CH-)															
	12	11A	10	07	08	05A	13	04	03A	03B	03C	2.5B	01A	01B	01C	01D
Physical-chemical	X	X[1]	X	X	X	X	X	X[2]	X[3]	X[3]	X	X	X	X	X	X
Biological[4]	X	X[1]	X	X	—	X	X	—	—	—	X	—	—	—	—	—
Algal growth potential[5]	X	—	X	X	—	X	—	—	—	—	X	—	—	—	—	—
Bacteriological	X	—	—	X	—	—	—	—	—	—	X	X	—	X	X	X
Benthic algae[5]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Benthic invertebrates[5]	X	—	X	X	—	—	—	—	—	—	X	—	—	X	X	—
Bottom sediments	X	—	X	X	X	X	X	—	—	—	X	—	—	X	X	—
Fish tissue	—	—	—	—	X[6]	—	—	X[6]	—	—	—	—	—	—	—	—

1 Determinations limited to 1979.
2 Determinations limited to on-site measurements; percent light transmission; turbidity; alkalinity; bicarbonate; carbon, organic, total and dissolved; iron, total and dissolved; nitrogen, ammonia, total; nitrogen, nitrite plus nitrate, total; phosphorus, orthophosphate, dissolved.
3 Determinations limited to specific conductance; dissolved oxygen; oxidation-reduction potential; pH; Secchi-disk visibility; temperature; iron, total and dissolved.
4 Phytoplankton, chlorophyll, zooplankton, seston, and ATP.
5 Determinations limited to 1978.
6 Approximate locations only.

multiparameter water-quality instrument, Model 6D Surveyor or Model 8002[1]. Before each data-collection trip and at the beginning of each sampling day, instrument calibration was checked against reproducible standards.

Stations within the reservoir were measured for on-site parameters at least every 2 m through the entire water column, and during periods of thermal and oxygen stratification, at every meter for the first 10 m. River stations below West Point Dam were measured at a depth of 0.7 m during minimum daily release and at 1 m during maximum daily release. Station CH-12 at the reservoir headwaters was treated as a river station and measured at a depth of 1 m. Cross-sectional variability was determined by measurement of on-site parameters at CH-12, CH-05A, CH-01A, and CH-01C. Measurements in the vertical profile were made at positions one-fifth, two-fifths, three-fifths, and four-fifths of the distance from the left bank.

Water samples for chemical determinations were collected in one of two ways. For trips 1 through 10, data-collection stations in the reservoir were point sampled by using a 3-L Van Dorn bottle. For the remaining trips, water was pumped directly from the required sampling depth to the container, or sealed filter chamber for filtered samples, by using a Master-flex single-channel peristaltic pump. Chemically inert silicone tubing was used for delivery of the sample to minimize contamination. The pumping method of sampling reservoir water replaced the point sampler method because the pumping method is faster, more convenient, and allows transfer of the sample directly to the container or filtering apparatus. Direct transfer of the sample also minimized oxidation of dissolved trace metals and sulfides collected from the anoxic hypoliminion. River stations below West Point Dam were point sampled with the 3-L Van Dorn bottle. A U.S. Geological Survey churn sample splitter was used to integrate the composited point samples. All samples were chilled and kept at approximately 4°C until time of analysis.

During periods of stratification, reservoir stations were sampled for chemical determinations as defined in table 2 at depths of 0.2, 2, 4, 8, and 16 m. Where the bottom depth was between either 13 and 16 m or 21 and 24 m, bottom samples were taken at 12 and 20 m, respectively. In rare instances where the bottom depth at coffer-structure stations (CH-03A, CH-03B, and CH-03C) was greater than 25 m, the last sample was taken at a depth of 24 m. However, no samples were taken closer than 1 m to the bottom. If the system was unstratified, only surface and near-bottom samples were taken. River sites below the dam were sampled at 0.7 m during minimum daily release and at 1.0 m during maximum daily release.

Water samples for all biological analyses except zooplankton were collected from the euphotic zone. Measurements to determine euphotic zone depth were made with a submarine photometer. After surface calibration, measurements of percent transmission were made at 1-m intervals until a value of 1 percent was obtained. Water was then collected from the euphotic zone at 1-m intervals (point sampled in 1978 or pumped in 1979) and composited in a 14-L sample splitter.

Aliquots for the analysis of phytoplankton, seston, AGP (algal growth potential), chlorophyll, and ATP (adenosine triphosphate) were drawn off the

[1] Any use of trade names is for descriptive purposes only and does not constitute endorsement by the U.S. Geological Survey.

splitter to insure a uniform composite. For phytoplankton analysis, a 1-L aliquot was drawn off into a plastic bottle and preserved with 4-percent formaldehyde solution and cupric sulfate. A 1-L seston sample was taken and preserved with mercuric chloride to stop all biological and microbiological activity. For AGP-USGS assays in 1978, a sample aliquot was filtered at a maximum vacuum of 250 mm of mercury through a 0.22-micrometer glass fiber filter immediately after collection to remove indigenous algae, bacteria, fungi, and other organisms which are capable of utilizing the available nutrients in the sample (Shoaf and Lium, 1979). The filtered sample was then immediately chilled to 4°C. A 1-L sample aliquot for AAP:BT-EPA (algal assay procedure: bottle test, U.S. Environmental Protection Agency method) was taken and chilled to 4°C and stored in the dark until the sample was autoclaved and filtered in the laboratory (U.S. Environmental Protection Agency, 1971). A 250-mL sample for chlorophyll analysis was vacuum filtered through a 0.45-micrometer glass fiber filter and stored in a glass vial. Chlorophyll samples were wrapped in aluminum foil to protect them from decomposition by exposure to light and were kept frozen until time of analysis.

Samples for ATP (U.S. Geological Survey method) analysis were prepared as described by Shoaf and Lium (1977) in the following manner: Ten milliliters of water were filtered through a 0.45-micrometer membrane filter and the filter was washed with 5 mL of distilled water. The filtrate was discarded. Any ATP present was then extracted with a buffered solution of DMSO (dimethyl sulfoxide), rinsed twice with more buffered DMSO solution, and quick-frozen in a dry ice-acetone bath. Samples were kept frozen on dry ice until time of analysis. Both chlorophyll and ATP samples were filtered at a pressure of no more than 250 mm of mercury to prevent cell lysis.

Zooplankton samples were collected by two methods. In 1978 zooplankton were obtained by a single vertical tow through the entire water column with a 0.5-m diameter, 80-micrometer mesh Wisconsin net. In 1979 zooplankton samples were obtained by pump compositing the entire water column, with the exception of the last meter above the bottom. A diaphragm pump rated at 31.2 L per minute connected to a 19-mm diameter rubber hose was used to pump water through a deck plankton collector with a net mesh size of 75 microns. The pump rating was used to calculate the rate at which the hose was raised through the water column so that a total volume of 200 L was filtered. Results from replicate analyses, taken in 1979 under experimentally designed and controlled conditions, indicated that the two methods compared favorably (Radtke, 1979). All samples were preserved in 4-percent formaldehyde solution. A few drops of glycerin were added to prevent embrittlement of the organisms.

Benthic macroinvertebrates were also collected by two methods. At selected mainstem reservoir and downstream river stations, benthic macroinvertebrates were collected with a jumbo multiple-substrate sampler as described in Hahn and others (1977). Each of two samplers was placed at a standard depth of 1 m below the water surface at sampling stations and left for about 6 weeks. Because reservoir elevations varied, substrate samplers were suspended from buoys. Benthic macroinvertebrates also were collected at selected downstream river stations with a ponar dredge and were immediately washed through a U.S. Standard No. 30 sieve. All samples were preserved in 70-percent ethyl alcohol.

Benthic algae were collected during three consecutive 2-week periods at station CH-01A with artificial substrate samplers made of thin polyethylene

plastic. Three substrate samplers were suspended 0.3-m below the water surface from a single buoy located in the center of the channel. These samplers were left for about 2 weeks. At the end of each 2-week interval, the three samplers were composited and preserved in 4-percent formaldehyde solution.

Samples for fecal coliform and fecal streptococci bacteriological analyses were collected at selected sites in West Point Reservoir and in the Chattahoochee River below West Point Dam. Samples were taken with sterile glass bottles at a depth of 0.3 m and analyzed within 6 hours. The membrane-filter method used for these analyses involved filtering suitable volumes of water through 0.45-micrometer membrane filters and incubating the filters on bacteria-specific agar for recommended time periods. Normally, volumes of 10, 30, and 100 mL were filtered, but where unusally high counts were expected 3, 10, and 30 mL were used. Filtration was done by following accepted sterile laboratory techniques. Filters to be examined for fecal coliform colonies were then placed onto m-FC agar and incubated for 22 ± 2 hours at 44.5°C. For fecal streptococci analysis, filters were placed onto KF agar and incubated for 46 ± 2 hours at 35°C.

Fish specimens for fish-tissue analysis were collected by Auburn University, Department of Fisheries and Cooperative Fishery Research Unit, from Yellowjacket and Wehadkee Creek embayments by using a rotenone treatment. In 1978 fish-tissue samples for whole-fish analysis were prepared from five young-of-the-year specimens of brown bullhead catfish (Ictalurus nebulosus) from each embayment. In 1979, eight of the smallest brown bullhead catfish and eight young-of-the-year largemouth bass (Micropterus salmoides) were collected for analysis. Upon collection, the fish specimens were immediately wrapped in aluminum foil and placed on dry ice for shipment to the laboratory. The fish were stored frozen until time of analysis. For each collection station in 1979 and each species of fish, five specimens were composited for whole-fish analysis and three specimens were composited for fillet-tissue analysis. The fillets were prepared by beheading, gutting, and skinning the specimens.

Bottom-sediment samples were collected with an epoxy-coated petite-ponar dredge and were composited with an epoxy-coated container and utensil. Epoxy-coated equipment was used to prevent contamination of the sample by extraneous metallic constituents from sampling devices. For the river stations, four samples were collected from equally spaced locations in the cross section, and were composited for analysis. At each lake station, four sediment samples were composited from points 6 m to the north, east, south, and west of the station.

ANALYTICAL METHODOLOGY

Analytical methods, detection limits, holding times, methods of treatment, and literature citations for method documentation are shown in table 4. Because many of the analytical methods listed in table 4 are established procedures and documented in the literature, the following discussion includes only those analytical methods which are not as well documented.

Taxonomic and numerical assessment of natural populations of zooplankton were determined to the nearest species where possible, by using the following method: Zooplankton samples were scanned first with a stereozoom microscope at 10-80 x magnification to compile a species list. The sample

Table 4.--Methods of collection and analysis of samples collected in and downstream from West Point Reservoir

[<, less than]

	Collection method	Treatment	Maximum holding time	Detection limit	Analytical method	Reference
I. Water sampling						
A. On-site physical-chemical						
Specific conductance.	On site	--	--	1 umhos/cm at 25°C	Multiparameter instrument	--
Dissolved oxygen	do.	--	--	0.1 mg/L	do.	--
Oxidation-reduction potential.	do.	--	--	5 mv	do.	--
Percent light transmission.	do.	--	--	--	Submarine photometer	--
pH	do.	--	--	0.1 unit	Multiparameter instrument	--
Secchi-disc visibility.	do.	--	--	None	20-cm diameter black and white Secchi disc.	--
Turbidity	1978-Van Dorn (PVC) point sampler. 1979-Peristaltic pump with silicone tubing.	Chill to 4°C	7 days	1 unit	Nephelometric	Skougstad and others (1979, p. 549-550).
Water temperature	On site	--	--	0.1°C	Multiparameter instrument	--
B. Selected physical-chemical						
Alkalinity	1978-Van Dorn (PVC) point sampler. 1979-Peristaltic pump with silicone tubing.	Chill to 4°C	24 hours	--	Electrometric, titration	Skougstad and others (1979, p. 517-518).
Bicarbonate	Calculated					--
Calcium, total	1978-Van Dorn (PVC) point sampler. 1979-Peristaltic pump with silicone tubing.	Chill to 4°C Acidity with HNO_3 to pH <2.	3 months	0.1 mg/L	Atomic absorption spectrometric, direct.	Skougstad and others, (1979, p. 111-112).
Carbon dioxide	Calculated					--
Carbon, organic, dissolved.	1978-Van Dorn (PVC) point sampler. 1979-Peristaltic pump with silicone tubing.	Chill to 4°C Filter through 0.45-um silver filter. 1978-Acidity to pH <2 with H_2SO_4.	24 hours	0.1 mg/L	Carbon conversion to CO_2, infrared analyzer.	Goerlitz and Brown (1972, p. 4-6).
Carbon, organic, total.	do.	do.	do.	0.1 mg/L	do.	Goerlitz and Brown (1972, p. 4-6).
Chloride, dissolved.	do.	Chill to 4°C Filter through 0.45-um filter.	3 months	0.1 mg/L	Colorimetric, ferric thiocyanate, automated.	Skougstad and others (1979, p. 333-335).
Color	do.	Chill to 4°C	3 days	--	Electrometric, visual comparison	Skougstad and others (1979, p. 521-522).
Iron, dissolved.	do.	Filter through 0.45-um filter, acidity to pH <2 with HNO_3.	3 months	10 ug/L	Atomic absorption spectrometric, direct.	Skougstad and other (1979, p. 153-154).
Iron, total	do.	Acidity to pH <2 with HNO_3.	1 month	10 ug/L	do.	Skougstad and others (1979, p. 157-158).
Manganese, dissolved.	do.	Filter through 0.45-um filter, acidify to pH <2 with HNO_3.	3 months	10 ug/L	Atomic absorption spectrometric, chelation-extraction.	Skougstad and others (1979, p. 187-188).
Manganese, total.	do.	Acidity to pH <2 with HNO_3.	do.	10 ug/L	Atomic absorption spectrometric, direct.	Skougstad and others (1979, p. 191-192).

Table 4.--Methods of collection and analysis of samples in and downstream from West Point Reservoir--Continued

	Collection method	Treatment	Maximum holding time	Detection limit	Analytical method	Reference
B. Selected physical-chemical--Continued						
Magnesium, total.	1978-Van Dorn (PVC) point sampler. 1979-Peristaltic pump with silicone tubing.	Chill to 4 C Acidify with HNO_3 to pH <2.	3 months	0.1 mg/L	Atomic absorption spectrometric, direct.	Skougstad and others (1979, p. 191-192).
Nitrogen, total	Calculated					--
Nitrogen, ammonia, total.	1978-Van Dorn (PVC) point sampler. 1979-Peristaltic pump with silicone tubing.	Chill to 4°C	24 hours	0.01 mg/L	Colorimetric, extraction-indophenol, automated.	Skougstad and others (1979, p. 425-427).
Nitrogen, inorganic, total.	Calculated					--
Nitrogen, Kjeldahl, total.	1978-Van Dorn (PVC) point sampler. 1979-Peristaltic pump with silicone tubing.	Chill to 4°C 1978-Acidify to ph <2 with HNO_3.	3 days	0.01 mg/L	Colorimetric, block digestor-salicylate-hypochlorite, automated.	Skougstad and others (1979, p. 407).
Nitrogen, nitrite plus nitrate, total.	do.	Chill to 4°C Acidify to pH <2 with H_2SO_4.	24 hours	0.01 mg/L	Colorimetric, cadmium reduction-diazotization, automated.	Skougstad and others (1979, p. 445-447).
Nitrogen, organic, total.	Calculated					--
Phosphorus, orthophosphate, dissolved.	1978-Van Dorn (PVC) point sampler. 1979-Peristaltic pump with silicone tubing.	Chill to 4°C Filter through 0.45-um filter, acidify to pH <3 with HCl.	3 days	0.01 mg/L	Colorimetric, phosphomolybdate, automated.	Skougstad and others (1979, p. 479-481).
Phosphorus, total.	do.	Chill to 4°C Acidify to pH <2 with H_2SO_4.	do.	0.01 mg/L	do.	Skougstad and others (1979, p. 491-493).
Residue, filterable, total.	do.	Chill to 4°C	14 days	1 mg/L	Residue on evaporation at 180°C, dissolved, gravimetric.	Skougstad and others (1979, p. 575-576).
Residue, nonfilterable, total.	do.	do.	do.	1 mg/L	Residue on evaporation at 105°C, total, gravimetric.	Skougstad and others (1979, p. 575-576).
Sodium, total	do.	Chill to 4°C Acidify with HNO_3 to pH <2.	3 months	0.1 mg/L	Atomic absorption spectrometric, direct.	Skougstad and others (1979, p. 259-260).
Sulfur, sulfate, dissolved.	do.	Filter through 0.45-um filter.	7 days	0.1 mg/L	Colorimetric, complexometric methylthymol blue, automated.	Skougstad and others (1979, p. 501-504).
Sulfur, sulfide, total.	do.	Zinc acetate and sodium hydroxide.	24 hours	0.1 mg/L	Titrimetric, iodometric.	Skougstad and others (1979, p. 614-620).
Zinc, total dissolved.	do.	Chill to 4°C Acidify with HNO_3 to pH <2.	3 months	10 ug/L	Atomic absorption spectrometric, direct.	Skougstad and others (1979, p. 277-278).
C. Biological						
Adenosine triphosphate.	1978-Van Dorn (PVC) point sampler composite. 1979-Plankton pump, from entire euphotic zone.	Field extraction, with DMSO. Freeze with dry ice. 0.45-um filter	30 days	0.01 mg/L	ATP photometer.	Shoaf and Lium (1977, p. 44-51).
Algal Assay Procedure: Bottle test.	1978-Van Dorn (PVC) point sampler composite.	Chill to 4°C Autoclaving followed by filtration through 0.45-um filter.	1 week	0.1 mg/L	Electronic particle counter Test organism - Selenastrum capricornutum.	U.S. Environmental Protection Agency, 1971.

Table 4.—Methods of collection and analysis of samples in and downstream from West Point Reservoir—Continued

	Collection method	Treatment	Maximum holding time	Detection limit	Analytical method	Reference
C. Biological--Continued						
Algal growth potential.	1978-Van Dorn (PVC) point sampler composite.	Chill to 4°C Field filter through 0.22-um filter.	1 week	0.1 mg/L	Electronic particle counter Test organism - *Selenastrum capricornutum*.	Shoaf and Lium (1979, p. 79-85).
Benthic algae	Artificial substrate	4 percent formaldehyde solution, detergent solution, cupric sulfate solution.	1 year	Species where possible.	Dissecting microscope	GZT and Associates (oral commun., 1979).
Benthic invertebrates.	Artificial substrate, and Ponar grab sampler.	70 percent ethyl alcohol.	do.	Genera where possible.	do.	Hahn and others (1977, p. 145-208).
Chlorophyll, a and b.	1978-Van Dorn (PVC) point sampler composite. 1979-Plankton pump, from entire euphotic zone.	Field filter through 0.45-um glass fiber filter, freeze with dry ice.	2 weeks	0.01 mg/L	High pressure liquid chromatography.	Shoaf and Lium (1979, p. 44-51).
F.C./F.S.	Calculated					--
Fecal coliform (F.C.).	Direct into sterile bottle.	Chill to 4°C	6 hours	--	Membrane filter technique using 0.45-um filter.	Ehlke and others (1977, p. 53-57).
Fecal streptococci (F.S.).	do.	do.	do.	--	do.	Ehlke and others (1977, p. 59-62).
Phytoplankton (identification and enumeration).	1978-Van Dorn (PVC) point sampler. 1979-Plankton pump, from entire euphotic zone.	Formaldehyde solution, detergent solution, cupric sulfate solution.	1 year	1978-Genera where possible. 1979-Species where possible.	Inverted microscope	Shoaf and Lium (1979, p. 20-25).
Seston	do.	HgCl2 solution, filtered in lab.	8 days	0.1 mg/L	Glass-fiber filter	Shoaf and Lium (1979, p. 26-31).
Zooplankton (identification and enumeration).	1978-Weighted 0.5 m diameter, 80-um Wisconsin net with flow meter. 1979-Deck collector with plankton pump, from entire water column.	2 percent formaldehyde solution, 0.5 mL of glycerin.	1 year	Species where possible.	Sedgwick-Rafter	GZT and Associates (oral commun., 1979).
II. Bottom sediments						
A. Particle size	Ponar grab (epoxy coated), 4 sample composite.	Not critical	--	--	Wet sieve (0.062-4.0 mm)	Guy (1969, p. 49-51).
B. Selected chemical						
Carbon, organic total.	do.	Chill to 4°C	14 days after processing.	100 mg/kg	Dilute HCL extraction, infrared analyzer.	Goerlitz and Brown (1972, p. 4-5).
Nitrogen, Kjeldahl, total.	do.	do.	do.	10 mg/kg	Colorimetric, block digest of sediment sample, salicylate-hypochlorite, automated.	Skougstad and others (1979, p. 403-405).
Oil and grease	do.	do.	do.	20 mg/kg	Freon extraction, gravimetry	American Public Health Association (1976, p. 513-515).
Phosphorus, total.	do.	do.	do.	1 mg/kg	Colorimetric, phosphomolybdate, automated.	Skougstad and others (1979, p. 487-489).
Volatile solids	do.	do.	do.	1 mg/kg	Gravimetric method, ignite to 550°C.	Skougstad and others (1979, p. 561).

Table 4.—Methods of collection and analysis of samples in and downstream from West Point Reservoir—Continued

	Collection method	Treatment	Maximum holding time	Detection limit	Analytical method	Reference
C. Metals						
Arsenic	Ponar grab (epoxy coated), 4 sample composite.	Chill to 4°C	3 months after processing.	1.0 ug/g	2 mm sieve, atomic absorption spectrometric, hydride, automated.	Skougstad and others (1979, p. 73-76).
Cadmium, total	do.	do.	do.	10 ug/g	HCL extraction, atomic absorption spectrometric, direct.	Skougstad and others (1979, p. 101-102).
Chromium, total	do.	do.	do.	10 ug/g	HCL extraction, atomic absorption spectrometric, direct.	Skougstad and others (1979, p. 123-124).
Copper, total	do.	do.	do.	10 ug/g	do.	Skougstad and others (1979, p. 147-148).
Iron, total	do.	do.	do.	10 ug/g	do.	Skougstad and others (1979, p. 155-156).
Lead, total	do.	do.	do.	10 ug/g	do.	Skougstad and others (1979, p. 165-166).
Manganese, total.	do.	do.	do.	10 ug/g	do.	Skougstad and others (1979, p. 189-190).
Mercury, total	do.	do.	do.	0.1 ug/g	Atomic absorption spectrometric, flameless.	Skougstad and others (1979, p. 201-203).
Nickel, total	do.	do.	do.	10 ug/g	HCL extraction, atomic absorption spectrometric, direct.	Skougstad and others (1979, p. 221-222).
Zinc, total	do.	do.	do.	10 ug/g	do.	Skougstad and others (1979, p. 275-276).
D. Chlorinated hydrocarbons						
Aldrin	Ponar grab (epoxy coated), 4 sample composite.	Chill to 4°C	1 month after processing.	0.1 ug/kg	Acetone-hexane extraction, gas chromatography.	Goerlitz and Brown (1972, p. 33-35).
BHC, total	do.	do.	do.	0.1 ug/kg	do.	Do.
Chlordane	do.	do.	do.	0.1 ug/kg	do.	Do.
DDD	do.	do.	do.	0.1 ug/kg	do.	Do.
DDE	do.	do.	do.	0.1 ug/kg	do.	Do.
DDT	do.	do.	do.	0.1 ug/kg	do.	Do.
Dieldrin	do.	do.	do.	0.1 ug/kg	do.	Do.
Endo-sulfur sulfate.	do.	do.	do.	0.1 ug/kg	do.	Do.
Endrin	do.	do.	do.	0.1 ug/kg	do.	Do.
Heptachlor	do.	do.	do.	0.1 ug/kg	do.	Do.
Heptachlor epoxide.	do.	do.	do.	0.1 ug/kg	do.	Do.
Perthane	do.	do.	do.	0.1 ug/kg	do.	Do.
Polychlorinated biphenyls (PCB).	do.	do.	do.	0.1 ug/kg	do.	Do.
Polychlorinated napthalenes (PCN).	do.	do.	do.	0.1 ug/kg	do.	Do.
Toxaphene	do.	do.	do.	0.1 ug/kg	do.	Do.

Table 4.--Methods of collection and analysis of samples in and downstream from West Point Reservoir--Continued

	Collection method	Treatment	Maximum holding time	Detection limit	Analytical method	Reference
III. Fish tissue analysis						
A. Metals						
Arsenic, total	Rotenone	Freeze with dry ice	3 months	0.1 ug/g	Methods for chemical analysis of water and wastes, with bovine liver as reference standard, EPA.	Skougstad and others (1979, p. 73-76).
Cadmium, total	do.	do.	do.	0.01 ug/g	do.	Skougstad and others (1979, p. 101-102).
Chromium, total	do.	do.	do.	0.1 ug/g	do.	Skougstad and others (1979, p. 123-124).
Lead, total	do.	do.	do.	0.01 ug/g	do.	Skougstad and others (1979, p. 165-166).
Mercury, total	do.	do.	do.	0.1 ug/g	do.	Skougstad and others (1979, p. 201-203).
Selenium, total	do.	do.	do.	1 ug/g	do.	Skougstad and others (1979, p. 245-247).
Zinc, total	do.	do.	do.	1 ug/g	do.	Skougstad and others (1979, p. 275-276).
B. Chlorinate hydrocarbons						
Aldrin	Rotenone	Freeze with dry ice	3 months	0.1 ug/kg	Pesticide Analytical Manual, Vol. I, "Methods which detect multiple residues," HEW and FDA, with bovine liver as reference standard.	Gaul and others (1972, sec. 211.1-211.17).
BHC, total	do.	do.	do.	0.1 ug/kg	do.	Do.
Chlordane	do.	do.	do.	0.1 ug/kg	do.	Do.
DDD	do.	do.	do.	0.1 ug/kg	do.	Do.
DDE	do.	do.	do.	0.1 ug/kg	do.	Do.
DDT	do.	do.	do.	0.1 ug/kg	do.	Do.
Dieldrin	do.	do.	do.	0.1 ug/kg	do.	Do.
Endo-sulfur sulphate.	do.	do.	do.	0.1 ug/kg	do.	Do.
Endrin	do.	do.	do.	0.1 ug/kg	do.	Do.
Heptachlor	do.	do.	do.	0.1 ug/kg	do.	Do.
Heptachlor epoxide.	do.	do.	do.	0.1 ug/kg	do.	Do.
Perthane	do.	do.	do.	0.1 ug/kg	do.	Do.
Polychlorinated biphenyls (PCB).	do.	do.	do.	0.1 ug/kg	do.	Do.
Polychlorinated napthalenes (PCN).	do.	do.	do.	0.1 ug/kg	do.	Do.
Toxaphene	do.	do.	do.	0.1 ug/kg	do.	Do.

was then thoroughly mixed and a subsample was withdrawn with an automatic pipette. Organisms were identified in a Sedgwick-Rafter cell having a sample volume of 2.7 mL. The cell was divided into eight equidimensional strips. Counts were made until either 200 of the dominant taxon were counted or homogeneity among subsamples was established. Identification slides were made of the adult copepods and cladocerans and all slides were examined with a research microscope at 30-1,000 x magnification.

Taxonomic and numerical assessment of natural populations of benthic algae were determined by the following method: Aliquots from 50-mL subsamples of periphyton were quantitatively examined by using either Sedgwick-Rafter counting cells or circular plankton counting chambers 0.6 mm deep. Samples collected during September 1978 contained substantial amounts of sediment and other flocculent material. It was necessary to use a smaller counting chamber for these samples.

The counting procedure followed the recommendations of Woelkerling and others (1976). Counting was routinely performed at 200 x magnification or 400 x for closer examination of certain species, using a phase contrast microscope. Diatoms were identified at 1,000 x from permanent mounts prepared from a sample aliquot oxidized by potassium dichromate-hydrogen peroxide. A unit or clump count system was used in which unicellular and colonial organisms were tallied as single units with equal numerical weight. Filamentous algae were counted as one count per 50-um unit length. Diatoms were counted with one unit equal to one complete cell.

Those taxa observed only during the scanning process of phytoplankton, periphyton, and zooplankton analysis are reported as present in insufficient densities to establish an accurate count. The primary identification references for all taxonomic analyses are cited in the bibliography. Results are reported in units as noted in the Appendix biological tables.

The Shannon-Weaver Species Diversity Index, $\overline{H}$ (Wilhm and Dorris, 1968) was calculated by using the following expression:

$$\overline{H} = \sum_{i=1}^{t} \frac{n_i}{N} \log_2 \frac{n_i}{N}$$

where n_i = total number of organisms present as taxon $\underline{i}$,

$N = \sum_{i=1}^{t} n_i$ = total number of organisms present in the sample,

and t = number of taxa present in the sample.

$\overline{H}$ ranges from a minimum of 0.0, occurring when all organisms belong to the same taxon (no diversity), to a maximum of $\log_2 N$, occurring where each organism present belongs to a unique taxon (maximum diversity).

Fish samples were prepared for trace metals analyses in the following manner: A tissue grinder with nonmetallic blades was used to homogenize whole fish and fillet samples separately. For each metal determination, a 10-g sample of homogenate and an equal amount of granulated bovine liver standard were placed separately in a furnace and ashed for 3-1/2 hours at 100°C. The temperature was then raised 50°C every 1/2 hour until a temperature of 450°C was reached, and this temperature was maintained overnight. After the samples were removed from the furnace and cooled, 2 mL of concentrated HNO_3 were added and the ashing process was repeated. After ashing,

the samples were cooled and put into solution using 2 mL of concentrated HNO_3 and 25 mL of deionized water. This solution was heated to boiling for 15 minutes. Each solution was then filtered and diluted to 500 mL. The determinations were performed by using the chelation extraction for cadmium and lead and direct aspiration for chromium and zinc.

A separate weight of tissue was obtained for the analyses of mercury, selenium, and arsenic. These metals were determined by an atomic absorption spectrophotometer and prepared with the same methodology used for determining these elements in bottom materials. The organic portion of the compounds that contain these elements, if present, was decomposed by digestion methods described in the citation listed in table 4. Arsenic, mercury, and selenium ions so libertated, together with the inorganic ions originally present, were subsequently reduced and stripped from solution before being determined spectrometrically.

Pesticide analyses were performed according to extraction and cleanup procedures given in the citation listed in table 4. The samples were prepared for analysis by utilizing a separate weight of subsample from the original homogenate. The results of these analyses are reported in micrograms per kilogram.

QUALITY ASSURANCE

An integral part of any water-quality investigation is a quality assurance program geared to determine compliance with acceptable levels of reproducibility. The following section describes quality control measures used to assure the quality of data for the West Point Reservoir study.

An important step toward obtaining good data is the proper collection and handling of samples. The following procedures were employed in the field to minimize sampling error:

(1) All sample containers were rinsed with sample water prior to filling to minimize the possibility of contamination;
(2) The silicone tubing used with the peristaltic pump was adequately flushed between sampling depths to minimize cross-contamination between sample sets from different depths;
(3) Before a sample was filtered, the filter assembly was rinsed with deionized water. A small amount of sample water was then passed through the filter to rinse the container; and
(4) All sample containers were checked against laboratory inventory sheets to insure that the sample set was complete and properly identified.

Quality assurance practices of the U.S. Geological Survey's National Water Quality Laboratories for the analyses of water samples are described in Friedman and Erdmann (1981).

Special measures also were taken in the project office to assure the integrity of the analytical results. Where applicable, routine data evaluation procedures included:

(1) Comparisons of total versus dissolved concentrations for each constituent sample pair, and laboratory reruns of both parameters if the dissolved value was greater than the total value;

(2) Spatial comparisons between and within stations to determine if any given value looked suspicious, and reruns for appropriate samples; and
(3) Deletion of questionable values from the data files if data were still unacceptable after rerun attempts.

Additional procedures were implemented throughout the study to assess the composite error resulting from sample collection and handling in the field and sample analyses in the laboratory. These additional procedures included:

(1) U.S. Geological Survey personnel periodically being accompanied in the field by representatives of the U.S. Army Corps of Engineers from the Mobile District Office for an inspection of field operative procedures;
(2) Collection of duplicate samples from randomly selected sites and analyses of these duplicates by the U.S. Army Corps of Engineers's South Atlantic Division Laboratory;
(3) Collection for duplicate analyses of 10 percent of the water chemistry, chlorophyll, adenosine triphosphate, and bacteriological samples collected during this study, and determination of reproducibility in sample collection and analyses (table 5); and
(4) Collection in duplicate of 50 percent of those samples collected for metals analyses and "spiking" of samples with predetermined amounts of these metals for determination of percent recovery (table 5). Samples collected for calculation of percent recovery analysis for iron, manganese, zinc, calcium, magnesium, potassium, and sodium analyses were prepared according to the following procedure: Samples "spiked" for total constituent analysis were prepared by first adding a small, known volume of a standard solution of metals to a 500-mL volumetric flask, acidifying with redistilled 16 N nitric acid to a pH less than 2, and then filling to volume with sample water. Samples "spiked" for dissolved-constiuent analysis were similarly prepared, but with a 100-mL volumetric flask instead of a 500-mL flask. Dates of preparation of standards, analyses, and constituent concentrations are presented in table 6.

Due to inherent problems in analytical and field collection methods, no established methods exist for the quality control of planktonic and benthic flora and fauna. Therefore, quality-assurance procedures could not be provided for the biological samples.

QUALITY CONTROL DATA PRESENTATION AND DISCUSSION

Results of duplicate and field "spiked" sample analyses were used to evaluate the accuracy and precision of the water-quality data. These observed variations in the analytical results are a reflection of the composite of determinant and indeterminant error in sample collection, handling, and analysis.

The percent relative deviation of a sample pair was adopted as a measure of central tendency for all chemical, biological, and bacteriological replicates. This statistic was computed according to the equation:

$$\text{relative deviation, in percent} = [|x_1 - \bar{x}|/\bar{x}]\,[100] \qquad (1)$$

where x_1 = constituent value of one member of a sample pair,
and $\bar{x}$ = mean constituent value.

Table 5.--Quality-assurance data-collection stations in and downstream from West Point Reservoir

[D, duplicate sample; S, "spiked" sample]

Data-collection period	Data-collection station (CH-)															
	12	11A	10	07	08	05A	04	13	03A	03B	03C	2.5B	01A	01B	01C	01D
April 9-18, 1978	D	—	—	—	—	D,S	—	—	—	—	—	—	D,S	—	—	—
April 30-May 14	D,S	—	—	—	—	D,S	—	—	—	—	—	—	D,S	D,S	D,S	—
May 30-June 6	D,S	—	—	—	—	D,S	—	—	—	—	—	—	D,S	—	—	—
July 9-13	D,S	—	—	—	—	D,S	—	—	—	—	—	—	D,S	—	—	—
August 13-18	D,S	—	—	—	—	D,S	—	—	—	—	—	—	D,S	—	—	—
August 27-31	D,S	—	—	—	—	D,S	—	—	—	—	—	—	D,S	—	—	—
October 16-19	D	—	D	—	—	—	—	—	—	—	D,S	—	D,S	—	—	—
November 27-31	—	—	D	—	—	D,S	—	—	—	—	—	—	—	D,S	—	—
January 22-24, 1979	—	—	—	D	—	—	—	D,S	—	—	—	—	—	—	—	D,S
March 19-22	D	—	—	—	D,S	—	—	—	—	—	—	D,S	—	—	—	—
April 30-May 5	D	—	D,S	—	—	—	—	D,S	—	—	—	D	—	—	—	D,S
June 11-15	—	—	—	D,S	—	—	D	—	—	—	D,S	—	—	—	D,S	—
July 23-27	—	—	—	—	D,S	—	—	—	—	—	—	—	D,S	D,S	—	D
August 20-24	D,S	—	D	—	—	—	D	—	—	—	D,S	—	—	—	D,S	—
September 16-20	—	—	—	—	—	D,S	—	D	—	—	D	D,S	—	D,S	—	—
October 14-17	—	—	D,S	—	—	—	D	D,S	—	—	D	—	D	—	—	D,S
December 9-13	—	D	—	—	—	D,S	—	—	—	—	—	—	—	—	D,S	—

Table 6.--Analysis of standard solutions used to prepare "spiked" samples submitted to the Atlanta Central Water-Quality Laboratory, U.S. Geological Survey

[All concentrations in milligrams per liter. +, not required for this data-collection trip]

Date of analysis	Constituent concentration									Period of use
	Iron, total	Iron, dis-solved	Manga-nese, total	Manga-nese, dis-solved	Zinc, total	Cal-cium, total	Mag-nesium, total	Potas-sium, total	Sodium, total	
April 5, 1978	12.5	2.57	2.75	0.67	2.55	4.70	1.40	2.00	5.10	April 19-18, 1978
Do.	12.5	2.57	2.75	.67	2.55	+	+	+	+	April 30-May 14
May 23, 1978	11.6	2.80	3.10	.73	3.00	+	+	+	+	May 30-June 6
July 12, 1978	12.0	3.00	2.70	.60	3.30	+	+	+	+	July 9-13
August 11, 1978	13.8	3.50	2.70	.60	2.50	+	+	+	+	August 13-18
August 29, 1978	12.7	3.20	2.70	.60	3.30	4.70	1.40	2.00	5.00	August 27-31
October 16, 1978	14.0	3.50	2.70	.60	+	+	+	+	+	October 16-19
November 24, 1978	13.0	3.20	2.70	.60	+	+	+	+	+	November 27-31
January 24, 1979	13.0	3.20	2.80	.64	+	+	+	+	+	January 22-24, 1979
March 19, 1979	13.0	3.10	2.70	.61	+	+	+	+	+	March 19-22
May 2, 1979	12.5	3.17	2.68	.63	+	+	+	+	+	April 30-May 5
Do.	12.5	3.17	2.68	.63	+	+	+	+	+	June 11-15
Do.	12.5	3.17	2.68	.63	+	+	+	+	+	July 23-27
August 22, 1979	11.0	.34	3.30	.76	+	+	+	+	+	August 20-24
Do.	11.0	.34	3.30	.76	+	+	+	+	+	September 16-20
Do.	11.0	.34	3.30	.76	+	+	+	+	+	October 14-17
Do.	11.0	.34	3.30	.76	+	+	+	+	+	December 9-13

The percentage distribution of relative deviations from replicate analyses of water-quality samples are presented in table 7. The sampling frequency was the same for most constituents, however, the number of sample pairs is highly variable because not all data were used in the computations. Any data pair in which one member equals zero will, by definition, give a percent relative deviation of 100 regardless of the difference between the two values. Thus table 7 presents statistical information only for those sample pairs having two nonzero values. No data are presented for total sulfide because of he large number of zero values.

The majority of relative deviations for all constituents analyzed are less than 10 percent. For example, results of the dissolved manganese analysis on 65 sample pairs indicated that 85 percent of the sample pairs (55 pairs) were within the 0-5 percent relative deviation category. Total alkalinity, bicarbonate, dissolved and total organic carbon, and total zinc had a sizable percentage of relative deviations in the 11- to 20-percent category. This observation does not necessarily imply poor field and(or) analytical technique. Total alkalinity and bicarbonate, for example, are unstable constituents and subject to more variability than other constituents. Generally, the duplicate analysis data indicate that the methodologies used produced reliable data.

The same measure of central tendency was used to evaluate the analyses of "spiked" samples. "Spiked" samples were always prepared from one of the replicate samples. Thus the two values used to compute the relative deviation represent a "predicted versus actual" comparison and the statistic is more properly referred to as a relative error. The predicted value in equation (1) becomes the "x" term and the actual (measured) value becomes the $\overline{x}$ term.

The percentage distribution of relative errors for spiked metal samples is given in table 8. Most relative errors were within 6-10 percent category and for some constituents many relative errors were within 5 percent category, which indicates a high degree of accuracy for those determinations.

Analysis of duplicate biological samples indicated, for the most part, consistency in both field preparation and laboratory analysis. Data are presented in table 9 for chlorophyll _a_, adenosine triphosphate, and fecal coliform and fecal streptococci indicator bacteria. Though the percentage distributions of relative deviations for these parameters are shifted more toward higher percentage categories, the results are judged to be reasonable, considering the inherent variability of biological samples. Part of the variability in the ATP duplicates can probably be attributed to field problems associated with the extraction, preservation, and shipment of this highly unstable compound. Statistical data for duplicate chlorophyll _b_ samples are not reported due to the large number of zero values.

DATA PRESENTATION

This section presents and summarizes the physical, chemical, and biological data collected in West Point Reservoir and the Chattahoochee River below West Point Dam for the study period. All of the data also are presented in tabular form in Appendix C-F. Summary (means and ranges) tables of all the data are presented in Appendix B.

Table 7.--Distribution of relative deviations for replicate analyses of selected water-quality samples collected in and downstream from West Point Reservoir, April 1978-December 1979

	Number of sample pairs	Percentage of sample pairs whose relative deviation falls within the indicated percentage category										
		0-5	6-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100
Nutrients												
Carbon, organic, dissolved	73	22	34	18	12	8	4	—	—	2	—	—
Carbon, organic, total	70	30	24	22	14	7	3	—	—	—	—	—
Nitrogen, ammonia, total	75	83	7	5	3	2	—	—	—	—	—	—
Nitrogen, Kjeldahl, total	71	39	41	13	4	3	—	—	—	—	—	—
Nitrogen, nitrite plus nitrate, total	49	82	10	2	—	—	2	—	—	—	4	—
Phosphorus, orthophosphate, dissolved	59	51	29	9	5	3	—	3	—	—	—	—
Phosphorus, total	71	61	20	15	—	3	—	1	—	—	—	—
Metals												
Calcium, total	8	88	12	—	—	—	—	—	—	—	—	—
Iron, dissolved	57	33	19	14	[illegible]	7	5	4	—	2	—	—
Iron, total	72	61	25	11	3	—	—	—	—	—	—	—
Magnesium, total	8	100	—	—	—	—	—	—	—	—	—	—
Manganese, dissolved	65	85	4	11	—	—	—	—	—	—	—	—
Manganese, total	72	86	10	4	—	—	—	—	—	—	—	—
Potassium, total	8	88	12	—	—	—	—	—	—	—	—	—
Sodium, total	8	100	—	—	—	—	—	—	—	—	—	—
Zinc, total	25	36	20	28	8	4	—	—	4	—	—	—
Other												
Alkalinity	74	39	28	23	6	3	—	—	—	—	1	—
Bicarbonate	35	31	31	29	9	—	—	—	—	—	—	—
Chloride, dissolved	8	75	13	12	—	—	—	—	—	—	—	—
Color	55	56	13	9	2	16	2	—	2	—	—	—
Residue, filterable, total	71	78	16	4	1	1	—	—	—	—	—	—
Residue, nonfilterable, total	61	30	28	15	13	3	8	—	2	—	1	—
Sulfur, sulfate, total	72	86	13	1	—	—	—	—	—	—	—	—
Turbidity	73	51	25	15	1	4	3	—	1	—	—	—

Table 8.—Distribution of the relative errors of "spiked" water-quality samples collected in and downstream from West Point Reservoir, April 1978-December 1979

	Number of sample pairs	Percentage of sample pairs whose relative errors fall within the indicated percentage category										
		0-5	6-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100
Iron, dissolved	48	48	40	2	6	2	--	--	--	--	2	--
Iron, total	51	57	33	6	4	--	--	--	--	--	--	--
Manganese, dissolved	50	66	24	6	4	--	--	--	--	--	--	--
Manganese, total	51	80	14	6	--	--	--	--	--	--	--	--
Zinc, total	18	33	50	6	6	--	--	--	--	--	5	--
Calcium, total	4	100	--	--	--	--	--	--	--	--	--	--
Magnesium, total	4	75	--	25	--	--	--	--	--	--	--	--
Potassium, total	4	100	--	--	--	--	--	--	--	--	--	--
Sodium, total	4	100	--	--	--	--	--	--	--	--	--	--

Table 9.--Distribution of relative deviations for replicate analyses of selected biological samples collected in and downstream from West Point Reservoir, April 1978-December 1979

	Number of sample pairs	Percentage of sample pairs whose relative deviation falls within the indicated percentage category										
		0-5	6-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100
Chlorophyll a, from plankton samples	16	38	38	12	--	6	--	--	--	6	--	--
Adenosine triphosphate (ATP)	8	13	50	--	12	--	--	25	--	--	--	--
Fecal coliform (MF)	8	--	25	38	25	--	--	--	--	12	--	--
Fecal streptococci (MF)	11	37	18	18	--	18	9	--	--	--	--	--

In Appendix B, mean values have been calculated with respect to annual stratification-destratification cycles (stratified versus unstratified, above and below the thermocline); changing flow conditions in the Chattahoochee River below West Point Dam (maximum versus minimum daily release); and depth weighted. Mean values are given only to illustrate temporal and longitudinal trends. Obviously, seasonal perturbations and anomalies are masked by mean values.

For the purpose of the following discussion, West Point Reservoir is a monomictic system that undergoes an annual thermal stratification-destratification cycle in four distinct stages: (1) The onset of stratification (thermal density layering) in the spring, (2) a stratified period during the summer, (3) a fall mixing period or turnover, and (4) a winter unstratified period. The significance of the spatial and temporal effects of thermal stratification in West Point Reservoir and on the Chattahoochee River downstream from West Point Dam, however, will be covered in much greater detail in the discussion section which follows.

Physical and Chemical Parameters

Water-quality physical measurements and chemical-concentration data at stations in West Point Reservoir and the Chattahoochee River below West Point Dam for the study period are presented in Appendix C-1 and C-4. Means and ranges of physical and chemical parameters are presented in Appendix B-1, B-2, B-3, and B-4. Graphs showing variations in water-quality parameters with reservoir depth are presented in Appendix C-2 and C-5, and isopleths showing the longitudinal variations in physical and chemical parameters are presented in Appendix C-3 and C-6.

Water temperature -

For the study period, mean water temperatures within the reservoir ranged from 14.7°C (CH-03A) to 27.9°C (CH-04). Minimum water temperatures during the unstratified periods ranged from 6.0°C (CH-04) to 11.3°C (CH-11A). Above the thermocline, maximum water temperatures ranged from 26.8°C (CH-12) to 30.9°C (CH-04) during stratified periods, whereas, below the thermocline, maximum water temperatures during the same periods ranged from 24.9°C (CH-03C) to 27.5°C (CH-03A).

During unstratified periods, mean water temperatures of the Chattahoochee River downstream from West Point Dam ranged from 16.1° to 16.2°C during maximum daily release periods and 17.7° to 17.9°C during minimum daily release periods. Mean water temperatures during stratified periods were 1°-4°C cooler during maximum daily release periods than during minimum daily release periods. In 1978, for example, mean water temperatures ranged from 21.9° to 22.7°C during maximum daily release periods, 24.2° to 25.7°C during minimum daily release periods, and in 1979, 24.0° to 25.5°C versus 24.2° to 25.4°C.

Specific conductance -

Mean specific conductance during unstratified periods ranged from 44 umho/cm at station CH-04 to 69 umho/cm at station CH-07. The specific conductance values measured in the undeveloped upper Wehadkee Creek during the

study period ranged from 30 to 106 umho/cm; whereas, in urban watersheds tributary to West Point Reservoir, such as Yellowjacket Creek, the range was from 48 to 230 umho/cm. Specific conductance changed very little downstream in the reservoir during unstratified periods.

During the warmer months, mean specific conductances of 63 to 94 umho/cm above and below the thermocline were associated with the effects of thermal stratification. The highest values were recorded in anoxic hypolimnetic waters and ranged from 77 (CH-03C) to 230 (CH-08) umho/cm. During the 1978 stratified period, there was a sharp decrease in specific conductance above the thermocline from CH-10 to CH-03C. Below the thermocline, mean conductances were relatively constant downstream to CH-07, and then decreased slightly to CH-03C. In 1979, specific conductance above the thermocline was nearly constant, with the exception of an increase at CH-05A. Below the thermocline, mean specific conductances increased downstream to CH-03C.

Specific conductance varied little in vertical profile at the dam pool (CH-03C), which resulted in little variation of specific conductance in the Chattahoochee River downstream from West Point Dam. Neither varying flow conditions nor season seemed to have much influence on specific conductance values; means ranged from 60 to 73 umho/cm during the entire study period. Specific conductances of maximum daily release water remained relatively constant. Minimum daily release water, however, showed a downstream increase from station CH-01B to station CH-01D. The increase is probably due to inputs of treated wastes to the Chattahoochee River from LaGrange, Ga., and Lanett, Ala.

Oxidation-reduction potential -

Redox (oxidation-reduction) potential values ranged from a mean of 265 mV in Wehadkee Creek (CH-13) to a mean of 595 mV at CH-12 in the main-channel headwaters of the reservoir. Maximum redox potentials (645-690 mV) characteristic of highly oxygenated waters occurred during unstratified periods. Redox potentials remained relatively constant with depth during the unstratified periods. With the onset of thermal stratification, there was a gradual increase in redox potential from the water surface to the epilimnial-metalimnial boundary, and a drastic decrease in redox potential from the hypolimnial-metalimnial boundary to the reservoir bottom. Minimum redox potentials were, therefore, recorded in anoxic hypolimnetic waters during stratified periods and ranged from 50 mV at CH-08 to 415 mV at CH-10. Mean redox potentials below the thermocline during stratified periods in both 1978 and 1979 were lower in Yellowjacket and Wehadkee Creeks than in the main channel.

Redox potentials in the Chattahoochee River downstream from West Point Reservoir were generally lower during maximum daily release periods than during minimum daily release periods. The lowest values recorded during maximum daily release ranged from 190 to 245 mV and during minimum daily release from 235 to 390 mV. During unstratified periods, the difference in redox potentials between maximum and minimum daily release waters was slight compared to redox potentials of maximum and minimum daily release waters during stratified periods. Mean redox potentials in the Chattahoochee River downstream from West Point Reservoir were generally higher during unstratified periods (560 to 575 mV) than during stratified periods (375 to 535 mV), and generally increased with distance downstream from the dam.

Dissolved oxygen -

Mean DO (dissolved-oxygen) concentrations ranged from 6.7 mg/L at CH-08 to 8.5 mg/L at CH-12 during the unstratified periods and from <0.1 mg/L at several sampling sites, to 13.4 mg/L at CH-07 during the stratified periods. During stratification, the hypolimnetic waters became anoxic (DO <0.1 mg/L), or nearly so, from CH-10 downstream to the dam pool. On the other hand, the epilimnetic waters were often supersaturated as a result of autotrophic photosynthetic activity.

Mean DO concentrations in the Chattahoochee River downstream from West Point Dam were substantially lower during stratified periods (4.6 versus 7.7 mg/L) due to the release of anoxic hypolimnetic water and were noticeably lower during maximum daily release periods than during minimum daily release periods. For example, when the reservoir was unstratified, mean concentrations in the river below the dam ranged from 7.2 to 7.5 mg/L during maximum daily release periods and from 7.7 to 8.2 mg/L during minimum daily release periods. During stratified periods, mean concentrations ranged from 3.3 to 4.9 mg/L during maximum daily release and from 5.2 to 6.0 mg/L during minimun daily release. Higher DO concentrations during minimum release periods were a result of minimum daily release water having more surface area to water volume for reaeration and longer time of travel (more time for reaeration to occur) between measurement sites than maximum daily release water.

pH -

pH values ranged from 5.4 (dam pool) to 8.4 (CH-10) during unstratified periods. During stratified periods, pH values below the thermocline ranged from 5.2 (CH-08) to 7.4 (CH-03C), and above the thermocline ranged from 5.4 (CH-08) to 9.8 (CH-03C).

Stratification in the reservoir had a noticeable influence on the pH of the Chattahoochee River downstream from West Point Dam. Release of anoxic hypolimnetic waters during the stratified periods resulted in lower pH values during maximum daily release periods. In 1978, mean pH values ranged from 5.8 to 6.3 during maximum daily release periods and 6.0 to 6.8 during minimum daily release periods. In 1979, mean pH values ranged from 6.0 to 6.4 during maximum daily release as compared to 6.3 to 6.6 during minimum daily release periods. During unstratified periods within the reservoir, however, there was little difference in pH values between maximum and minimun daily release water. Mean pH values ranged from 6.4 to 6.5 during maximum daily release and 6.3 to 6.5 during minimum daily release.

Euphotic depth -

The upper layer of water in which light supports biological productivity is called the euphotic zone. The base of the euphotic zone is the depth at which the light intensity is 1 percent of that at the surface and approximates the depth at which the rate of photosynthesis and the rate of respiration are equal. The quantity of light and the depth to which light penetrates are therefore significant factors in determining the amount and form of biological productivity.

Euphotic depth values within the main channel of the reservoir ranged from 1 m (CH-11A) to 6 m (CH-03C). The longitudinal distribution of

euphotic depth and its relation to total seston for selected sampling trips is illustrated in figure 3. Total seston is defined as the weight of the total suspended matter in water and includes both living and nonliving material. In the lotic section of the reservoir, euphotic depth probably was a function of the loading of nonfilterable residue (suspended solids), whereas in the lentic section, it was mostly a function of biological activity.

The classical subjective Secchi disc visibility depth was also determined. Mean transparencies ranged from 0.49 m at CH-11A to 1.60 m at CH-03C. The lowest values recorded ranged from 0.15 to 0.55 m during periods of heavy rainfall and subsequent runoff and the highest values recorded during summer low-flow periods ranged from 0.65 to 2.20 m. The relation between Secchi disc visibility depth and euphotic depth (measured by a submarine photometer) is illustrated in figure 4. The values of the Secchi-disc visibility measurements were approximately 30 percent of those determined by the submarine photometer.

Residue, nonfilterable and filterable, total -

Mean nonfilterable-residue concentrations in the Chattahoochee River upstream from its confluence with Yellowjacket Creek were about twice those downstream from the confluence (32 to 40 mg/L versus 12 to 16 mg/L) during unstratified periods. Mean concentrations above the thermocline were extremely low at all stations in 1978 and 1979 (3.0 to 5.6 mg/L). Mean concentrations below the thermocline showed a same sharp drop between CH-07 and CH-05A as occurred during the unstratified period. In 1978 mean concentrations were 29 to 33 mg/L upstream from Yellowjacket Creek versus 5 to 17 mg/L downstream, and in 1979 mean concentrations were 20 to 25 mg/L upstream and 8 to 20 mg/L downstream.

Flow from the reservoir had little effect on the amount of nonfilterable residue downstream from West Point Dam during stratification periods. However, water releases during the unstratified periods did affect the concentrations. Means ranged from 12 to 22 mg/L during maximum daily release periods and from 6 to 9 mg/L during minimum daily release periods. Generally, mean concentrations did not show much variation from one station to another.

Filterable-residue concentrations were low and uniform with respect to depth and time at all stations in the reservoir. Thermal stratification did not have much effect upon filterable residue distributions, though in 1978 mean and maximum concentrations in Yellowjacket and Wehadkee Creeks were higher than those in other parts of the reservoir. Filterable residue concentrations in the Chattahoochee River downstream from West Point Dam were about the same as in the reservoir, and did not vary appreciably with flow conditions.

Turbidity -

Mean turbidities measured in West Point Reservoir during unstratified periods ranged from 13 NTU (nephelometric turbidity units) at CH-03C to 33 NTU at CH-07. A sharp decrease in mean turbidity occurred between CH-07 and CH-05A. During stratified periods, mean turbidities were generally much higher in the hypolimnion than in the epilimnion. Above the thermocline,

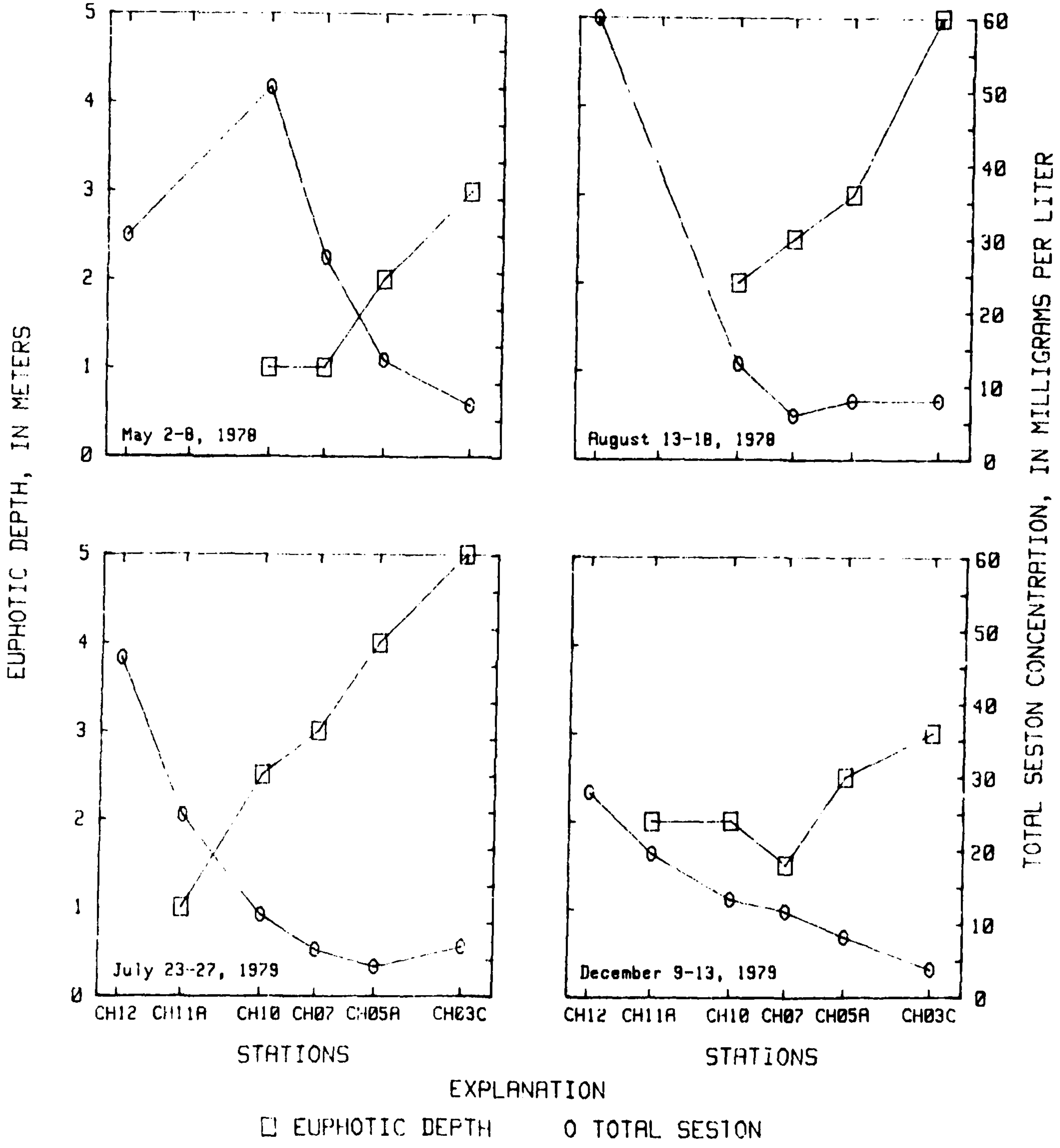


FIGURE 3.--Longitudinal distribution of euphotic depth and total seston concentrations in West Point Reservoir for selected collection trips.

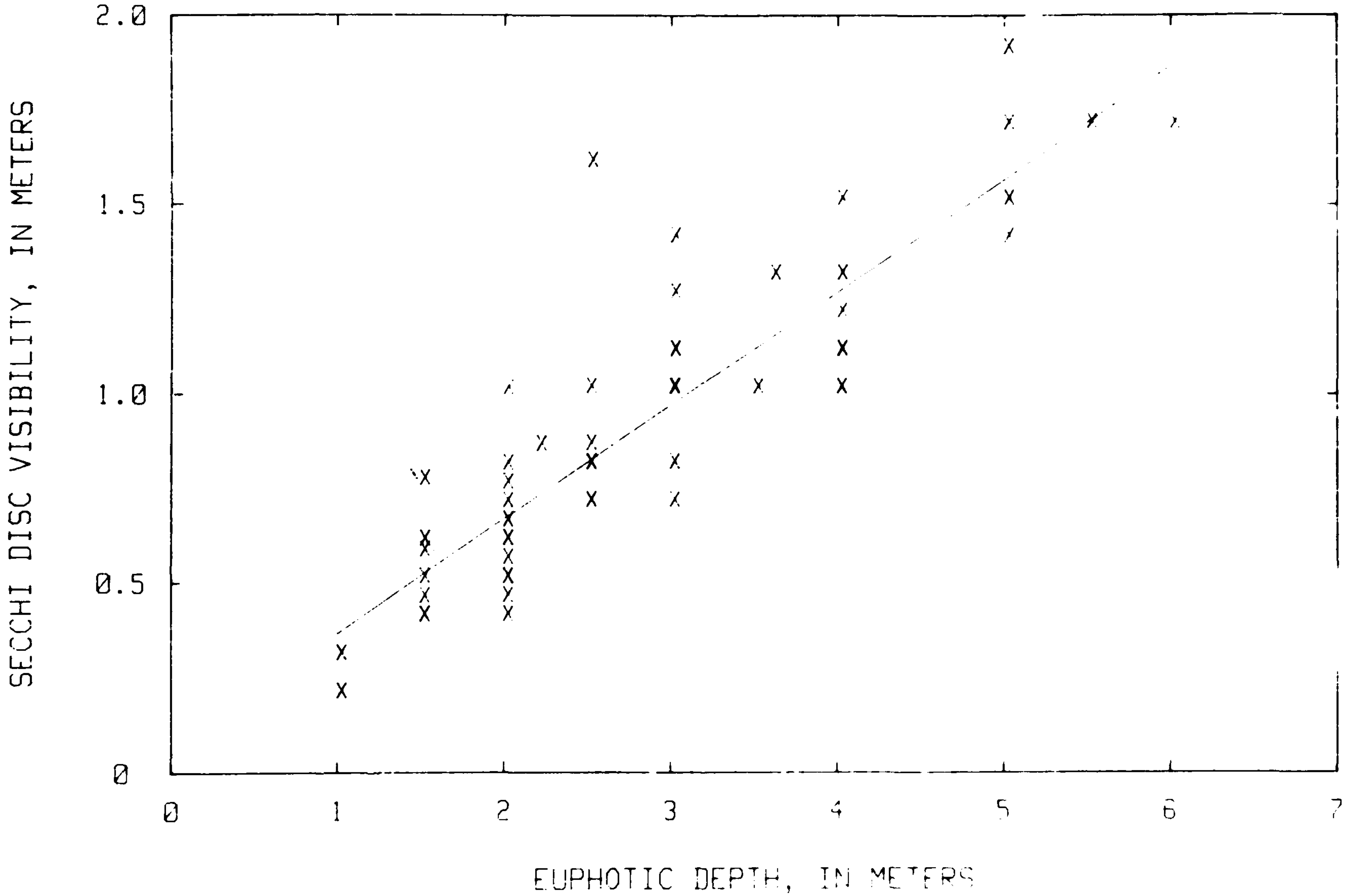


Figure 4.--Relation of Secchi disc visibility to euphotic depth in West Point Reservoir, 1978 and 1979.

mean turbidities for the reach of the reservior between CH-10 and CH-03C ranged from 1.7 to 5.9 NTU, whereas below the thermocline mean values ranged from 5.8 to 31 NTU.

Flow downstream from West Point Dam seemed to have little influence on turbidity in the Chattahoochee River. Values were generally less than 10 NTU, but maximum values between 30 and 35 NTU were recorded during some periods.

Color -

The color of water in lakes and reservoirs depends on the spectral quality of light that is transmitted through the surface. Generally, color is attributable to dissolved organic matter, such as humic acids, and these compounds typically absorb most strongly at shorter wavelengths (Wetzel, 1975).

"Apparent" water color (unfiltered sample), as distinguished from "true" water color, was determined in this study by visual comparison with the standard platinum-cobalt scale (Pt-Co units).

Color values in the reservoir were, for the most part, low and uniform during unstratified periods and had means which ranged from 11 Pt units at CH-07 to 26 Pt units at CH-13. Color values during both 1978 and 1979 were extremely low above the thermocline. Mean color values ranged from 15 to 20 Pt units during 1978 and from 4.2 to 12 Pt units in 1979. In contrast, mean color values were substantially higher below the thermocline at all stations and ranged from 30 to 70 Pt units in 1978 and from 30 to 39 Pt units in 1979. An extremely high color value of 400 Pt units was measured in the hypolimnion of Yellowjacket Creek (CH-08) during summer stratification in 1978. Relatively high color values below the thermocline occur because reduction reactions in anoxic bottom waters often cause the release of highly colored substances from sediment.

Alkalinity -

Mean alkalinities (mg/L as $CaCO_3$) in West Point Reservoir for the entire sampling periods ranged from 12 mg/L in the Chattahoochee River headwaters (CH-11A) to 15 mg/L in Yellowjacket and Wehadkee Creeks (CH-08, CH-13). Although total alkalinity did not vary appreciably with depth or season at most stations in the reservoir, substantially higher values were measured in the hypolimnion of Yellowjacket Creek (52 mg/L in 1978 and 46 mg/L in 1979). Total alkalinity downstream from West Point Dam apparently was not appreciably affected by stratification and seasonal water discharges. Means and ranges for downstream river stations were similar to those measured upstream from the dam.

Carbon dioxide -

Carbon dioxide concentrations were calculated from field measurements of pH and laboratory determinations of alkalinity. Means for the entire sampling period (reservoir only) ranged from 9.1 mg/L at CH-12 to 16 mg/L at CH-04. The greatest ranges in CO_2 concentrations were observed during periods of thermal stratification. Epilimnetic concentrations were usually less than 5.0 mg/L because of photosynthetic uptake of CO_2 by phytoplankton.

Associated pH values were often greater than 8.0 near the surface. High CO_2 concentrations were calculated for hypolimnetic waters having pH values less than 5.5. Maximum concentrations under these conditions ranged from 72 mg/L at CH-05A to 180 mg/L at CH-08.

In the Chattahoochee River downstream from the dam, mean concentrations of CO_2 during the winter were low and did not vary appreciably with changing flow conditions, but release of anoxic hypolimnetic water during stratified periods substantially increased the CO_2 levels during high flow (17 to 39 mg/L versus 5.5 to 31 mg/L in 1978 and 13 to 41 mg/L versus 8 to 16 mg/L in 1979).

Bicarbonate -

Results of bicarbonate analyses reflect the same information provided by alkalinity determinations and are related to calcium carbonate alkalinity through the equation: $[HCO_3^-] = 1.22 \times$ alkalinity (as $CaCO_3$).

Sulfur, sulfate, dissolved -

Mean concentrations of the sulfate ion measured in West Point Reservoir were low, with means for the entire sampling period ranging from 2.7 mg/L at CH-04 to 7.2 mg/L at CH-12. The greatest extremes were found at CH-08 (Yellowjacket Creek) and ranged from 2.0 to 11 mg/L. Varying flow conditions downstream from West Point Dam also showed no apparent influence on sulfate concentrations in the Chattahoochee River. Sulfate concentrations downstream from West Point Dam were less variable than those in the reservoir, with means ranging from 5.4 to 6.1 mg/L and extremes ranging from 3.2 to 8.9 mg/L.

Sulfur, sulfide, total -

Sulfide was found to be present only when the reservoir was stratified. In the reservoir, concentrations ranged from 0.10 mg/L at station CH-03C to 0.80 mg/L at stations CH-08 and CH-05A. During stratified periods, release waters downstream from West Point Dam contained appreciable amounts of sulfide ranging from 0.10 to 2.80 mg/L. The maximum value (2.80 mg/L) was measured at the Lanett, Ala., city water intake (CH-01B). Hydrogen sulfide odor was often prevalent downstream from the dam immediately after release.

Chloride, dissolved -

Mean chloride concentrations in West Point Reservoir were extremely low during the period of study, ranging from 3.5 to 4.4 mg/L. Extremes ranged from 2.0 to 5.0 mg/L. Mean concentrations downstream from West Point Dam ranged from 2.8 to 4.9 mg/L and extremes ranged from 2.8 to 6.0 mg/L.

Nutrient Parameters

Nutrient concentration data at stations in West Point Reservoir and the Chattahoochee River below West Point Dam for the study period are presented in Appendix C-7. Means and ranges of nutrient concentrations are presented in Appendix B-5. Graphs showing variations in nutrient concentration with

reservoir depth are presented in Appendix C-8, and isopleths showing the longitudinal variations in nutrient concentration are presented in Appendix C-9.

Phosphorus, total -

Mean total phosphorus concentrations during unstratified periods ranged from 0.04 mg/L at CH-03C to 0.27 mg/L at CH-12. Both total and suspended phosphorus decreased appreciably downstream from Franklin, Ga., (CH-12) to the dam pool (CH-03C). Generally, total phosphorus measured in release waters downstream from West Point Dam reflected concentrations at the dam pool during unstratified periods. Mean concentrations in the release waters ranged from 0.03 to 0.06 mg/L. Flow conditions had little effect on the total phosphorus measured at downstream stations.

Thermal stratification in the reservoir was found to be a factor affecting the vertical distribution of total phosphorus. Mean total phosphorus in the reservoir during the 1978 and 1979 stratification periods ranged from 0.02 to 0.07 mg/L above the thermocline and ranged from 0.05 to 0.15 mg/L below the thermocline. Total phosphorus concentrations in the water column decreased substantially downstream toward the dam pool (0.20 to 0.43 mg/L at CH-12 compared with 0.00 to 0.13 at CH-03C). Total phosphorus concentrations in the reach of the Chattahoochee River downstream from the reservoir ranged from 0.01 to 0.12 mg/L during both years. The concentrations during periods of maximum release were slightly lower from those during periods of minimum release.

Phosphorus, orthophosphate, dissolved -

Dissolved orthophosphate concentrations in the reservoir decreased in the downstream direction from CH-12 to CH-03C. Mean concentrations during unstratified periods ranged from 0.01 to 0.12 mg/L. During stratified periods of 1978-79, mean concentrations ranged from <0.01 to 0.03 mg/L above the thermocline and ranged from 0.01 to 0.08 mg/L below the thermocline. During stratified periods, epilimnetic concentrations of dissolved orthophosphate from CH-10 downstream to CH-03C were at times below detection limits (<0.01 mg/L), while hypolimnetic concentrations were measured as high as 0.20 mg/L (Yellowjacket Creek). Dissolved orthophosphate concentrations in the Chattahoochee River downstream from the reservoir ranged from <0.01 to 0.08 mg/L. Variations in flow from the reservoir had little effect on the dissolved orthophosphate concentrations measured at downstream stations.

Nitrogen, nitrite plus nitrate, total -

In general, nitrite plus nitrate concentrations in West Point Reservoir were lower during stratified than during unstratified periods. During stratified periods, above the thermocline, mean concentrations in the main channel ranged from 0.07 to 0.40 mg/L and below the thermocline, mean concentrations ranged from 0.14 to 0.72 mg/L. During the unstratified periods, mean nitrite plus nitrate concentrations ranged from 0.49 to 0.74 mg/L in the main channel and from 0.10 to 0.58 mg/L in Yellowjacket and Wehadkee Creeks. In the Chattahoochee River downstream from West Point Dam, mean concentrations of nitrite plus nitrate ranged from 0.39 to 0.52 mg/L during the unstratified periods, and from 0.08 to 0.17 mg/L during stratified periods.

Nitrogen, ammonia, total -

Mean ammonia concentrations during the unstratified periods ranged from 0.15 mg/L (CH-11A) to 0.29 mg/L (CH-10) in the main channel and from 0.11 mg/L (CH-04) to 0.29 mg/L (CH-08) in the tributaries. Stratification had a pronounced effect on the vertical distribution of ammonia in the reservoir. Mean concentrations during the stratified periods ranged from 0.02 to 0.08 mg/L above the thermocline. Below the thermocline, mean ammonia concentrations were relatively high and ranged from 0.30 to 0.65 mg/L in the main channel and from 0.28 to 0.84 mg/L in both major tributaries. The highest observed concentration was 2.90 mg/L in Yellowjacket Creek (CH-08). Mean ammonia concentrations in the Chattahoochee River downstream from the dam during the unstratified periods in the reservoir ranged from 0.12 to 0.16 mg/L during maximum daily release compared to 0.09 to 0.13 mg/L during minimum daily releases. Release of anoxic hypolimnial waters during stratified periods resulted in even greater increases in ammonia concentrations. Mean concentrations in maximum daily release waters ranged from 0.16 to 0.29 mg/L and in minimum daily release waters mean concentrations of ammonia ranged from 0.08 to 0.23 mg/L.

Nitrogen, organic, total -

Mean concentrations ranged from 0.24 mg/L (CH-13) to 0.35 mg/L (CH-12) during unstratified periods. Mean organic nitrogen concentrations during stratified periods ranged from 0.33 to 0.57 mg/L above the thermocline and ranged from 0.13 to 0.36 mg/L below the thermocline. The highest observed concentrations of organic nitrogen (1.0 mg/L) occurred at CH-08 and CH-07.

Organic nitrogen concentrations in the Chattahoochee River downstream from West Point Dam were about the same as in the reservoir, and did not vary appreciably with season or with flow from the reservoir.

Carbon, organic, total, and organic, dissolved -

TOC (total organic carbon) and DOC (dissolved organic carbon) concentrations measured in West Point Reservoir during the study period were low and varied little, either spatially or temporally. Mean TOC concentrations during the unstratified periods ranged from 3.5 to 4.5 mg/L. Data collected during stratified periods indicated slightly more TOC present in the epilimnion than in the hypolimnion at most stations. Mean TOC concentrations in the Chattahoochee River downstream from the dam were slightly lower than those in the reservoir and showed no appreciable difference with flow from the reservoir.

With the exception of stations CH-12 and CH-11A, most of the organic carbon present was in the dissolved phase. Mean DOC concentrations during unstratified periods ranged from 2.5 mg/L at CH-11A to 3.5 mg/L at CH-08 in the reservoir and from 2.6 mg/L (CH-01A during minimum daily release) to 3.9 mg/L (CH-01D during minimum daily release) in the Chattahoochee River downstream from West Point Dam.

Metal Parameters

Metal concentration data from stations in West Point Reservoir and the Chattahoochee River below West Point Dam for the study period are presented in Appendix C-10. Means and ranges of metal concentration data are presented in Appendix B-6. Graphs showing variations in iron concentration with reservoir depth are presented in Appendix C-11, and isopleths showing the longitudinal variations in iron concentration are presented in Appendix C-12.

Sodium, calcium, potassium, and magnesium, totals -

The major alkali and alkaline earth metals measured in West Point Reservoir and the Chattahoochee River downstream from West Point Dam display the abundance ranking, Na>Ca>K>Mg. Mean sodium concentrations ranged from 4.4 to 5.1 mg/L in the reservoir and from 3.8 to 6.2 mg/L in the river. Extremes for all stations sampled ranged from 2.9 to 7.3 mg/L. Mean calcium concentrations ranged from 3.4 to 4.2 mg/L in the reservoir and from 3.3 to 4.3 mg/L in the river. Extremes ranged from 2.8 to 6.5 mg/L. Potassium ranged from 1.1 to 2.1 mg/L for all stations sampled. Magnesium, the least abundand of these constituents, showed the least amount of variation. Means ranged from 1.1 to 1.3 mg/L and extremes ranged from 0.9 to 2.0 mg/L.

Iron, total -

Mean total iron concentrations during unstratified periods ranged from 700 ug/L at CH-03C to 2,400 ug/L at CH-12. Stratification had a strong influence on the distribution of iron in the reservoir. Mean total iron concentrations above the thermocline, during thermal stratification ranged from 120 ug/L at CH-05A, CH-03C, and CH-13 to 250 ug/L at CH-10 in 1978 and from 120 ug/L at CH-03C to 660 ug/L at CH-08 in 1979. In sharp contrast, mean concentrations below the thermocline ranged from 880 ug/L (CH-03C) to 4,400 ug/L (CH-08) in 1978 and from 1,100 ug/L (CH-07) to 4,800 ug/L (CH-08) in 1979.

With few exceptions, mean total iron concentrations in the Chattahoochee River downstream from West Point Dam were higher during maximum daily release periods than during minimum daily release periods, and this pattern was consistent throughout the sampling period. Maximum daily release mean total iron concentrations ranged from 600 to 980 ug/L during unstratified periods and from 730 to 1,040 ug/L during stratified periods. Minimum daily release mean concentrations, on the other hand, ranged from 520 to 570 ug/L during unstratified periods and from 600 to 940 ug/L during stratified periods.

Iron, dissolved -

Spatial and temporal patterns in dissolved iron distributions were similar to those observed for total iron. Mean concentrations during the unstratified periods ranged from 40 ug/L at CH-03C to 700 ug/L at CH-08. Mean concentrations below the thermocline during thermal stratification ranged from 290 ug/L at CH-03C to 3,300 ug/L at CH-08 in 1978 and from 30 ug/L (CH-10) to 3,500 ug/L (CH-08) in 1979. Like total iron, mean dissolved

iron concentrations in the Chattahoochee River downstream from the dam were much higher during maximum daily releases than during minimum daily releases when the reservoir was stratified.

Manganese, total -

Mean total manganese concentrations during unstratified periods at main-channel sites ranged from 120 ug/L at CH-12 to 200 ug/L at CH-07 and from 330 to 470 ug/L in Yellowjacket and Wehadkee Creeks. The vertical distribution of total manganese during thermal stratification was similar to that observed for total iron. Above the thermocline, mean concentrations during stratified periods were lower than the whole-water column mean concentrations for unstratified periods and ranged from 10 to 70 ug/L. However, below the thermocline mean concentrations for both 1978 and 1979 were considerably higher than the unstratified values and ranged from 270 to 2,900 ug/L.

Mean total manganese concentrations in the Chattahoochee River downstream from West Point Dam during the unstratified periods were generally higher during maximum daily release periods than during minimum daily release periods, though not by an appreciable quantity. The difference between concentrations of total manganese at maximum and minimum daily release during the stratified periods were substantially increased by the release of anoxic hypolimnetic waters. In 1978, mean concentrations during maximum daily release ranged from 420 to 490 ug/L as compared with 140 to 230 ug/L during minimum daily release periods and in 1979, 410 to 510 ug/L at maximum daily release periods compared with 270 to 390 ug/L during minimum daily release periods.

Manganese, dissolved -

Mean dissolved manganese concentrations during unstratified periods ranged from 30 to 120 ug/L in the main channel and from 280 to 380 ug/L in Yellowjacket and Wehadkee Creek tributaries. Mean dissolved manganese concentrations above the thermocline during stratified periods of both 1978 and 1979 ranged from less than 10 to 40 ug/L. Mean concentrations below the thermocline ranged from 150 to 2,000 ug/L, which approached the total manganese concentrations.

Dissolved manganese downstream from West Point Dam varied appreciably with both flow and season. Mean maximum daily release concentrations during unstratified periods were only slightly higher than those for minimum daily release periods. However, during the stratified period, mean concentrations were nearly twice as great during maximum daily release periods as during minimum daily release periods.

Zinc, total -

Mean total zinc concentrations during unstratified periods ranged from 20 to 30 ug/L in the reservoir and from <10 to 20 ug/L in the Chattahoochee River downstream from the dam. Mean concentrations in the reservoir were

slightly higher during stratified periods (30 to 40 ug/L above the thermocline and from 40 to 50 ug/L below the thermocline) than during the unstratified periods. Mean concentrations downstream from the dam ranged from 30 to 80 ug/L and did not vary appreciably with flow.

Biological Parameters

Biological data collected at stations in West Point Reservoir and the Chattahoochee River below West Point Dam for the study period are presented in Appendix D-2 through D-6. A summary of biological analyses are presented in Appendix B-7 and D-1.

Phytoplankton -

The distribution of total phytoplankton standing stock values in relation to time of year and location within the reservoir is shown in figure 5. The lentic section of the reservoir (stations CH-10 to CH-03C) showed the greatest biological activity. During stratified periods, the highest concentrations of phytoplankton consistently occurred in the upper lentic, or middle, section of the reservoir (stations CH-10 to CH-05A); station CH-07 had the highest estimated concentration (666,280 cells per mL) in June 1978 (Appendix D-2). The estimates are only crude approximations of standing stock. They are good for determining which species are present in water, but tend to overemphasize large concentrations of small-cell organisms such as those in West Point Reservoir.

Temporal and longitudinal variation of the major groups of phytoplankton are illustrated in figure 6, and temporal and longitudinal distribution of selected common phytoplankton at selected stations in West Point Reservoir is represented in figure 7. Comparisons utilizing cell-count data should be made with caution, because comparing a cell of one species with a cell of another species of different size, volume, and metabolic production would be erroneous. Certain generalizations about the data, however, can be made as follows:

(1) During stratified periods, the dominant group in terms of numbers per unit volume was the blue-green algae (Cyanophyta). *Agmenellum quadruplicatum*, *Anacystis incerta*, and *Lyngbya contorta* were the most prevalent.

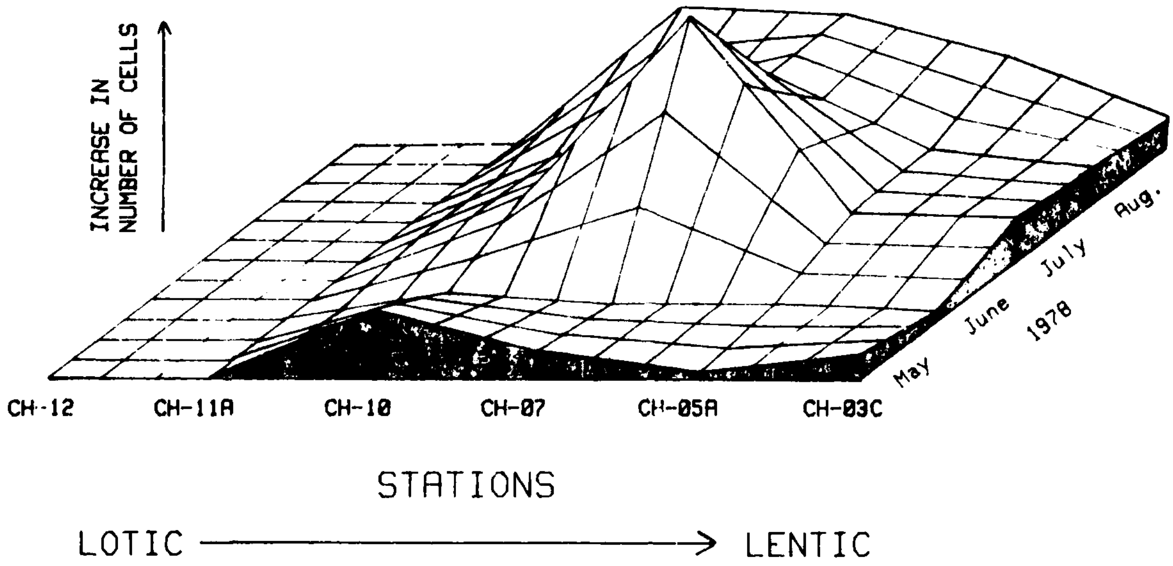
(2) The lotic section (vicinity of CH-12) was represented by forms characteristic of benthic riverine communities, for example, *Gomphonema parvulum* and *Nitzschia palea*.

(3) The ecotone between lotic and lentic environments (vicinity of CH-11A) was characterized by high species richness as a result of having representative species from both environments.

(4) There was an increase in true plankters comprising the communities, as the distance to the dam pool decreased.

Chlorophyll a -

All algae contain chlorophyll a. Chlorophyll a is the molecule that absorbs light energy from the sun and transforms it into chemical energy in the photosynthetic process. Measurement of this photosynthetic pigment can give insight into the quantity of algae present and, if measured over a time



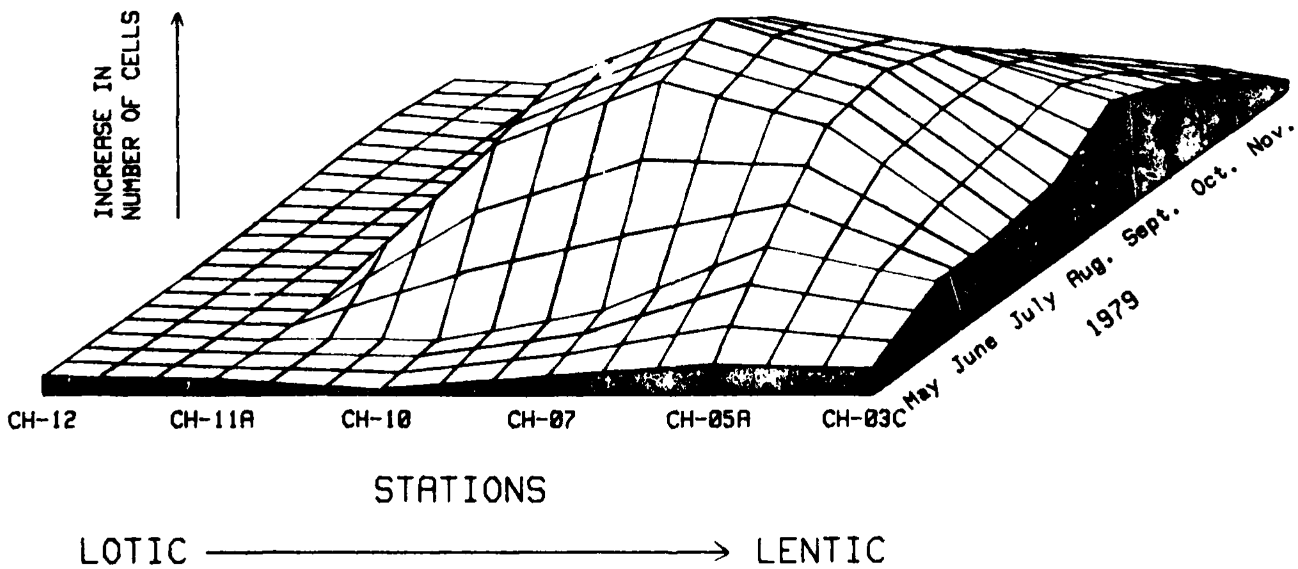
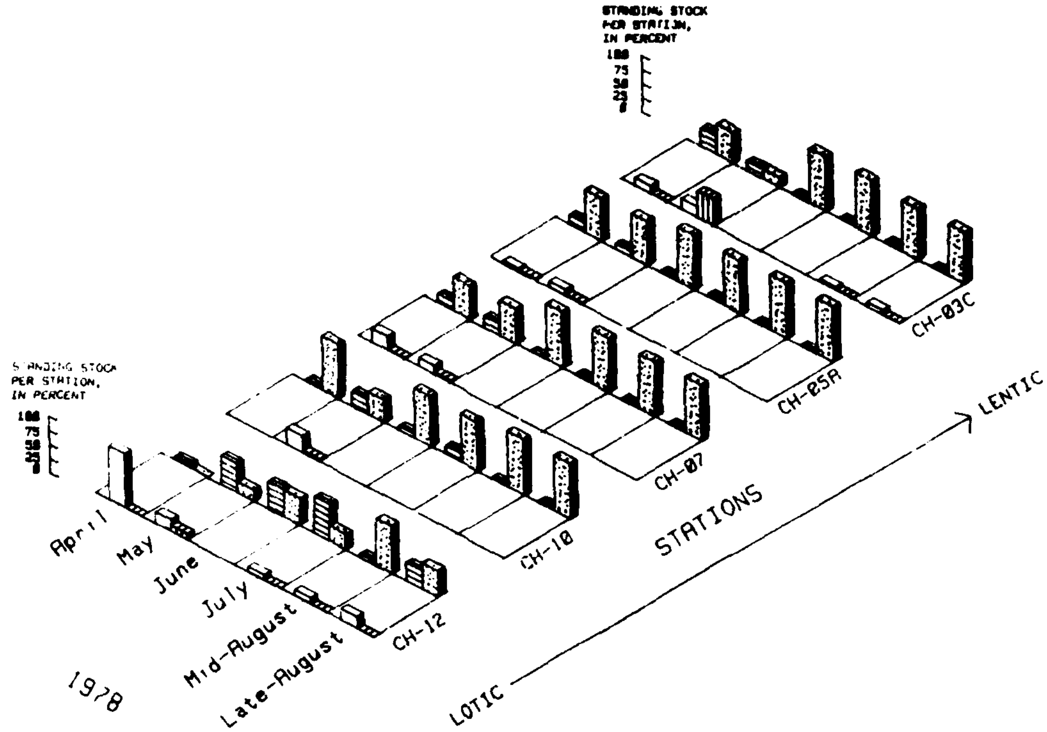


FIGURE 5.--Trends in temporal and longitudinal variations of total phytoplankton standing stock in West Point Reservoir, 1978 and 1979.



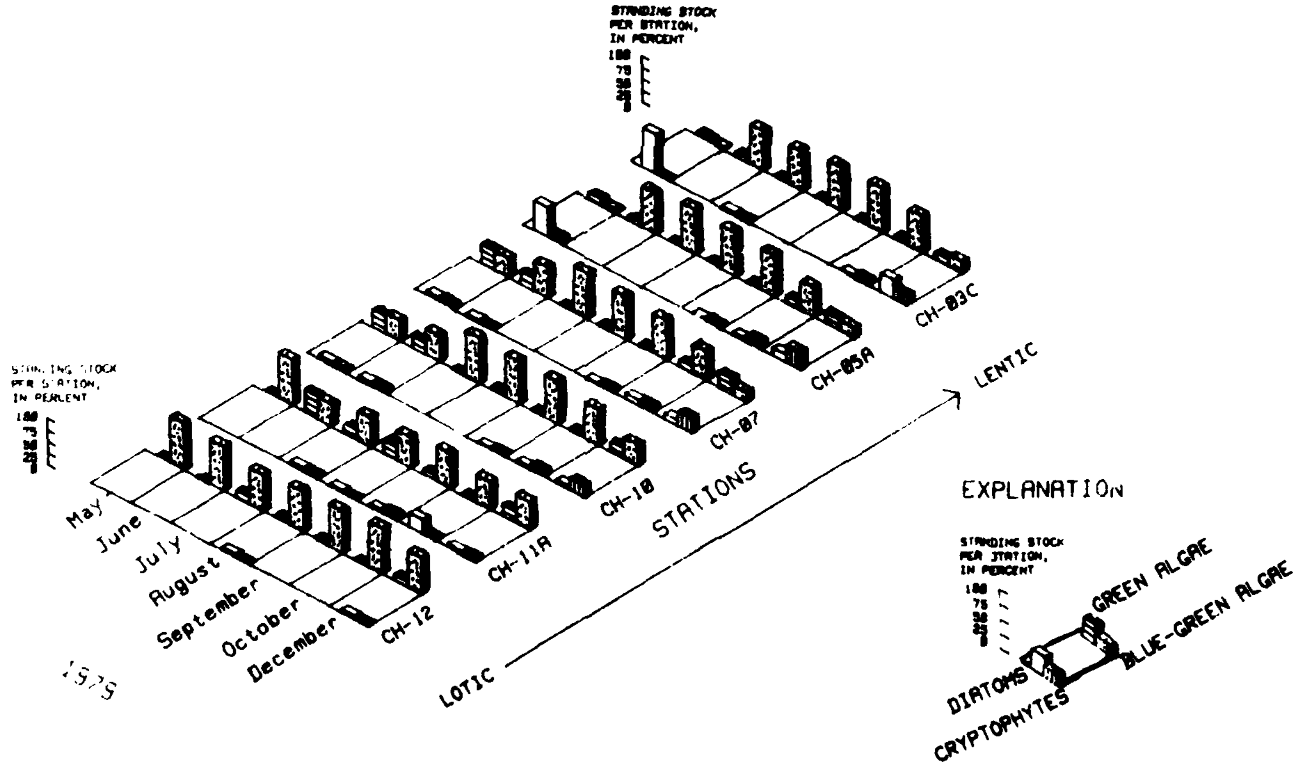


FIGURE 6.--Temporal and longitudinal variations of the major groups of phytoplankton in West Point Reservoir, 1978 and 1979.

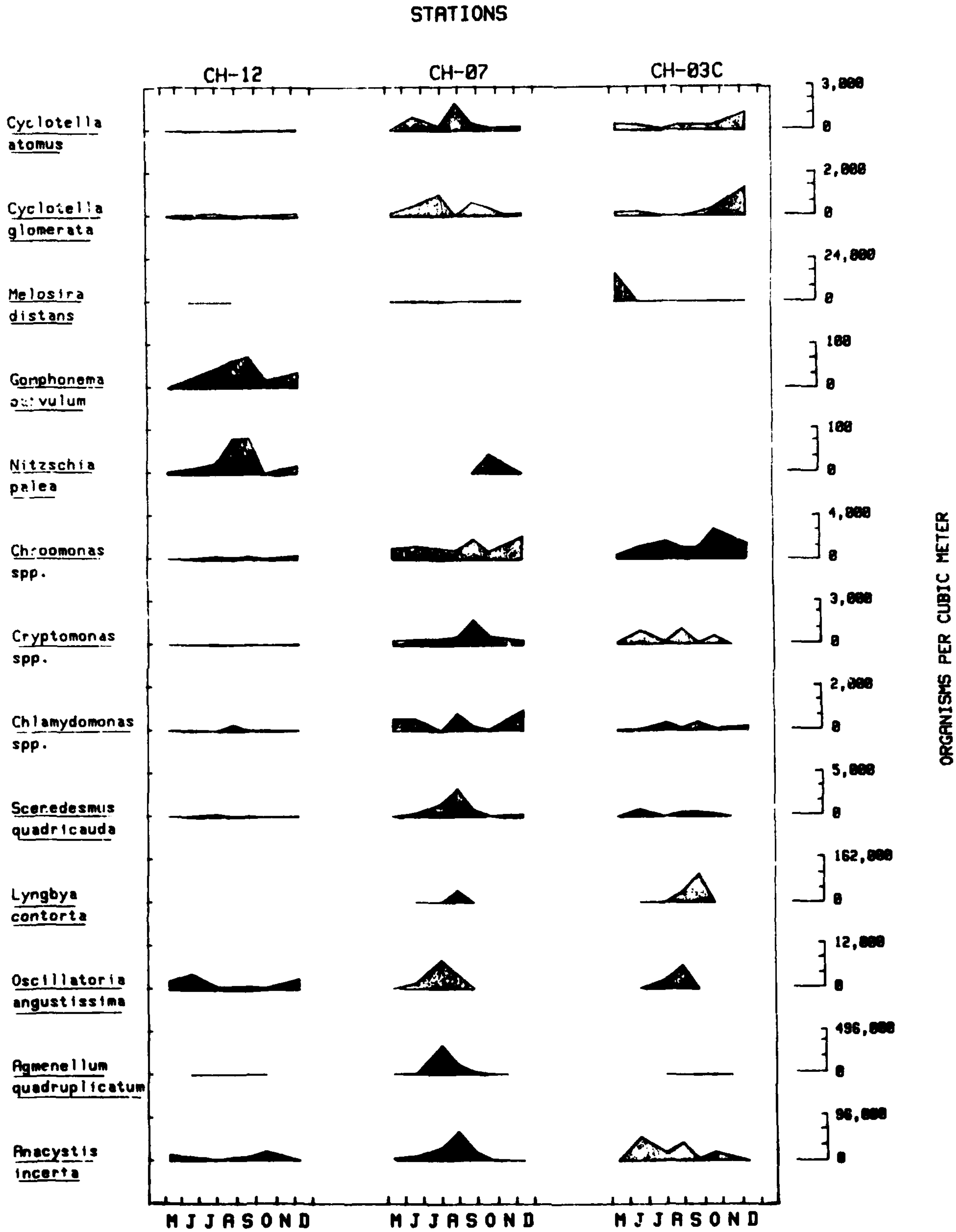


FIGURE 7.--Temporal and longitudinal distributions of selected phytoplankton species at selected stations in West Point Reservoir, 1979.

interval, can provide an estimate of primary production. Because chlorophyll a concentration varies with species and with environmental and nutritional factors which do not necessarily affect total algal biomass, estimates based on chlorophyll measurements are relatively imprecise, as indicated by the scatter in the relation presented in figure 8.

In the lotic section of the reservoir, the chlorophyll values ranged from 1.12 to 9.36 ug/L and in the lentic section, the values ranged from 2.99 to 35.0 ug/L. The high chlorophyll values (2.72-35.0 ug/L) in March 1979 (Appendix D-1) probably occurred at the same time as a spring diatom population maxima. This could not be substantiated because supportive cell-count data were not obtained.

Algal growth potential -

The longitudinal distribution of algal growth potential concentrations for selected data-collection trips is illustrated in figure 9. A maximum algal growth potential value of 48.0 ug/L was obtained at the uppermost data-collection station (CH-12) at Franklin, Ga., on July 13, 1978, whereas a minimum value of 0.4 ug/L was recorded at the dam pool station (CH-03C) in August 1978.

Zooplankton -

Distribution of total zooplankton standing stock values in relation to time of year and location within the reservoir is represented in figure 10. The lentic section of the reservoir (stations CH-10 to CH-03C) showed the greatest zooplankton activity, ranging from 1,000 to 284,160 organisms/m^3 (Appendix D-3). The largest concentrations of zooplankton were reported during early summer and autumn. During stratified periods, the highest concentrations of zooplankton occurred in the midsection of the reservoir (stations CH-07 and CH-05A); station CH-05A had the highest reported concentrations (284,160 organisms/m^3) in June 1979. Inferences should not be made based on differences between 1978 and 1979 zooplankton data because of a change in sampling methodology. The 1978 data probably are not indicative of the annual distribution of zooplankton standing stock due to poor sampling design.

The zooplankton communities in West Point Reservoir consisted primarily of rotifers, cladocerans, and copepods (fig. 11). Rotifers were the predominant animal plankters both spatially and temporally. Cladocerans and copepods comprised larger fractions of the communities at the dam pool (station CH-03C) compared to upstream stations and at all stations during spring and autumn.

The temporal and longitudinal distribution of selected representative zooplankton species are presented in figure 12. For the sampling period, Conochilus unicornis and Keratella crassa were the most abundant rotifers and Bosmina longirostris and Diaphanosoma brachyurum represented the most frequently observed cladocerans. Because of inadequacies in the taxonomy of larval stages, the majority of copepod specimens were not identified to the species level. The fauna of the lotic section were low in species richness and was represented by forms characteristic of benthic riverine communities,

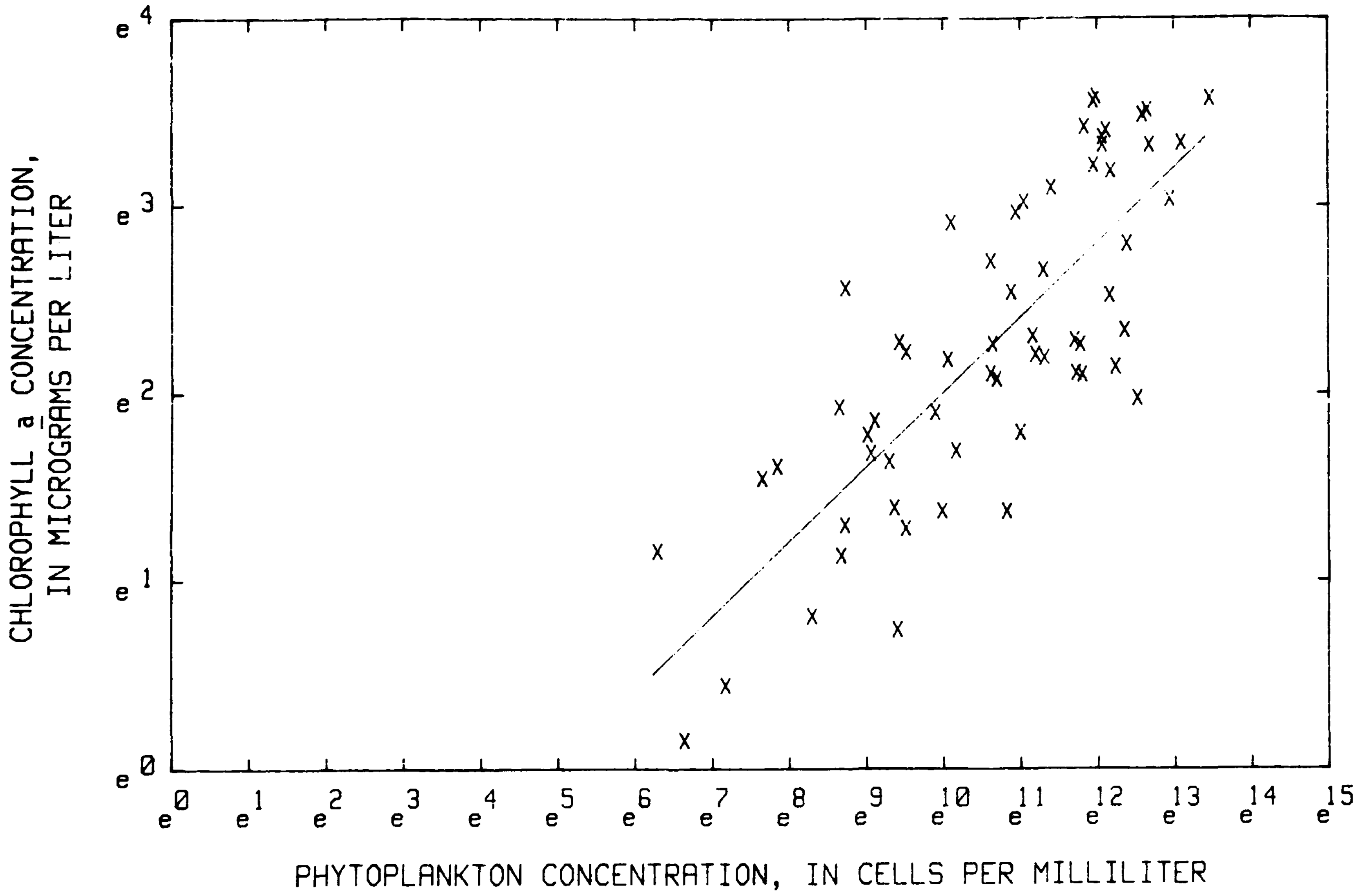


Figure 8.--Relation of chlorophyll a concentration to phytoplankton standing stock in West Point Reservoir, 1978 and 1979.

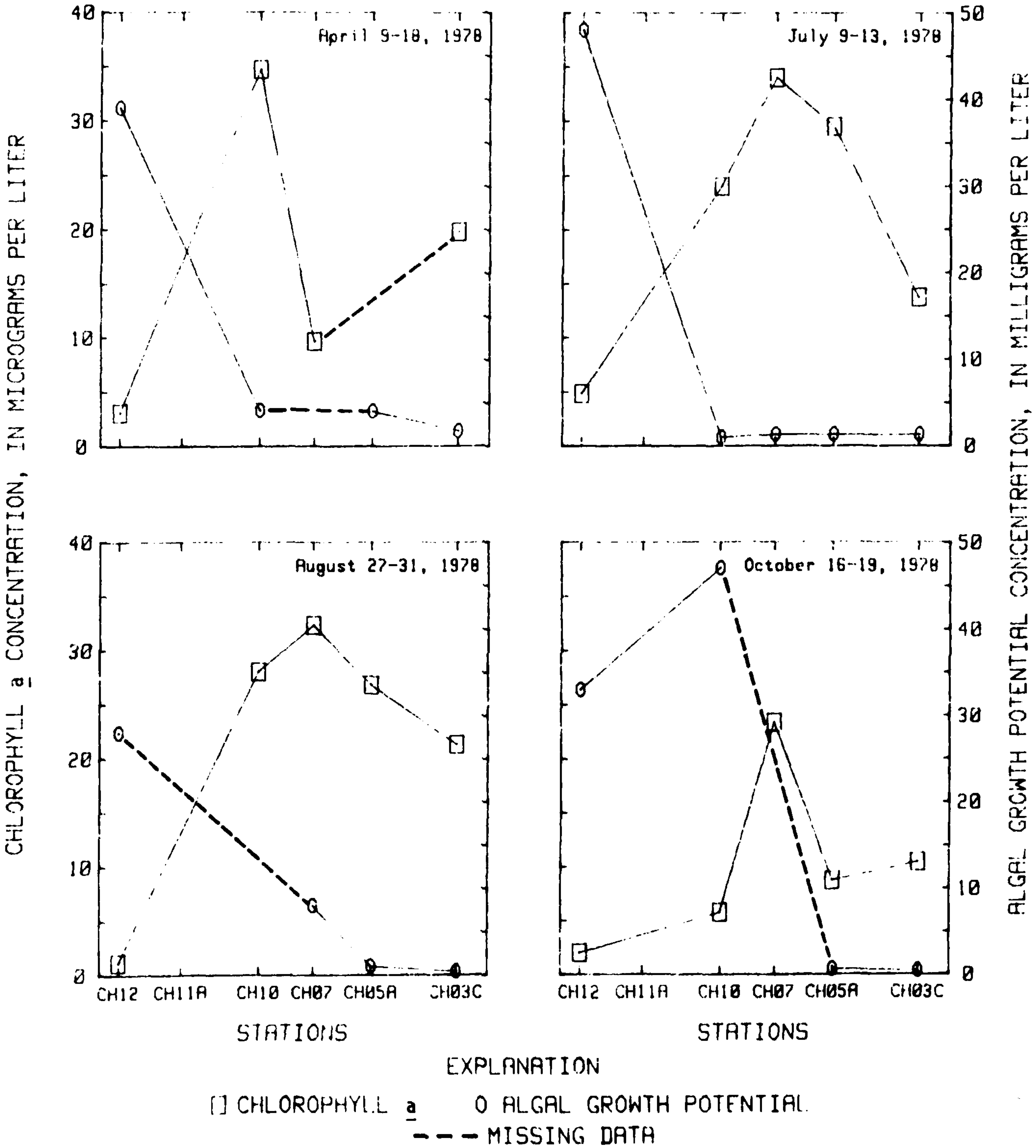
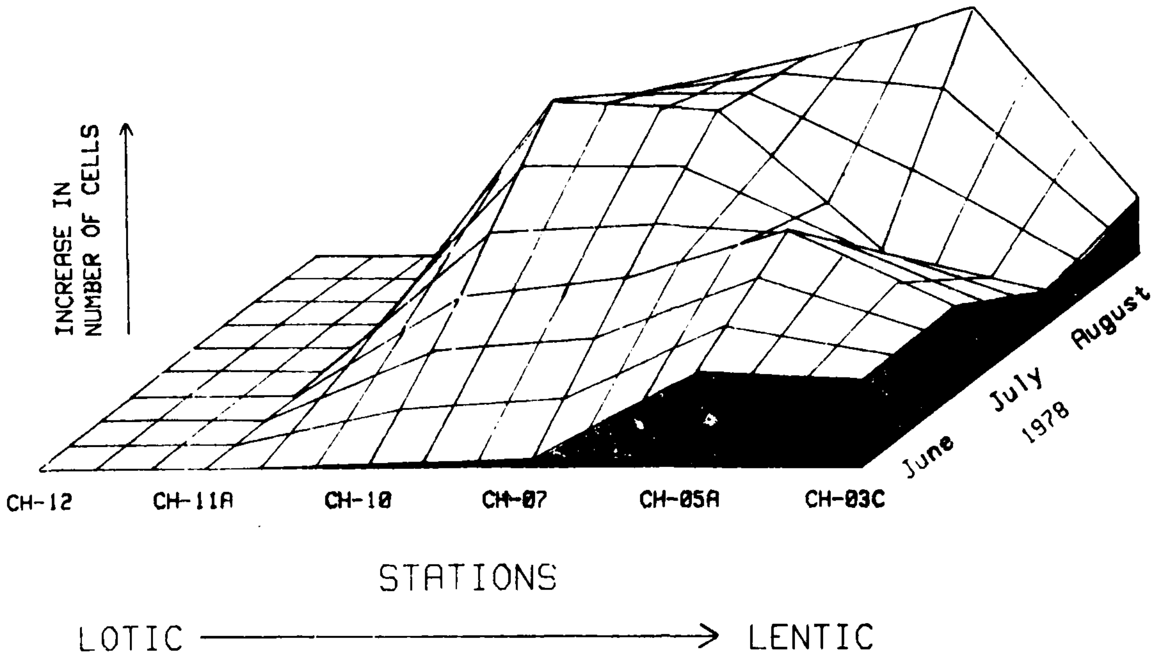


FIGURE 9.--Longitudinal distribution of chlorophyll a and algal growth potential concentrations in West Point Reservoir for selected data-collection trips.



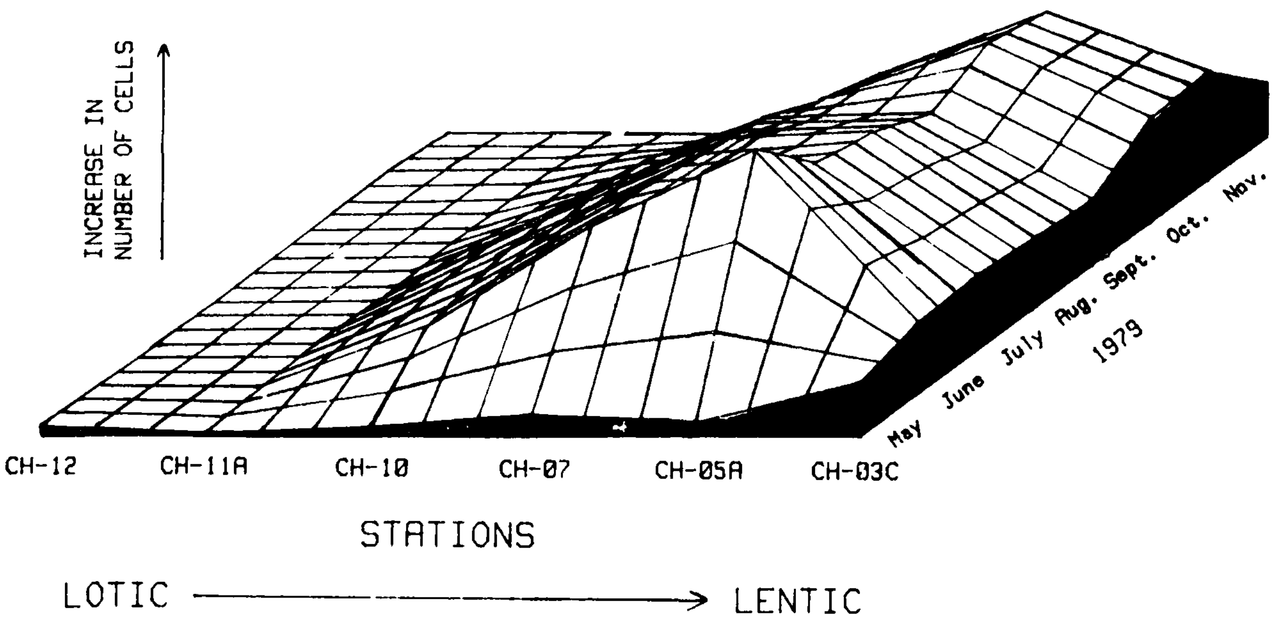


FIGURE 10.--Trends in temporal and longitudinal variations of total zooplankton standing stock in West Point Reservoir, 1978 and 1979.

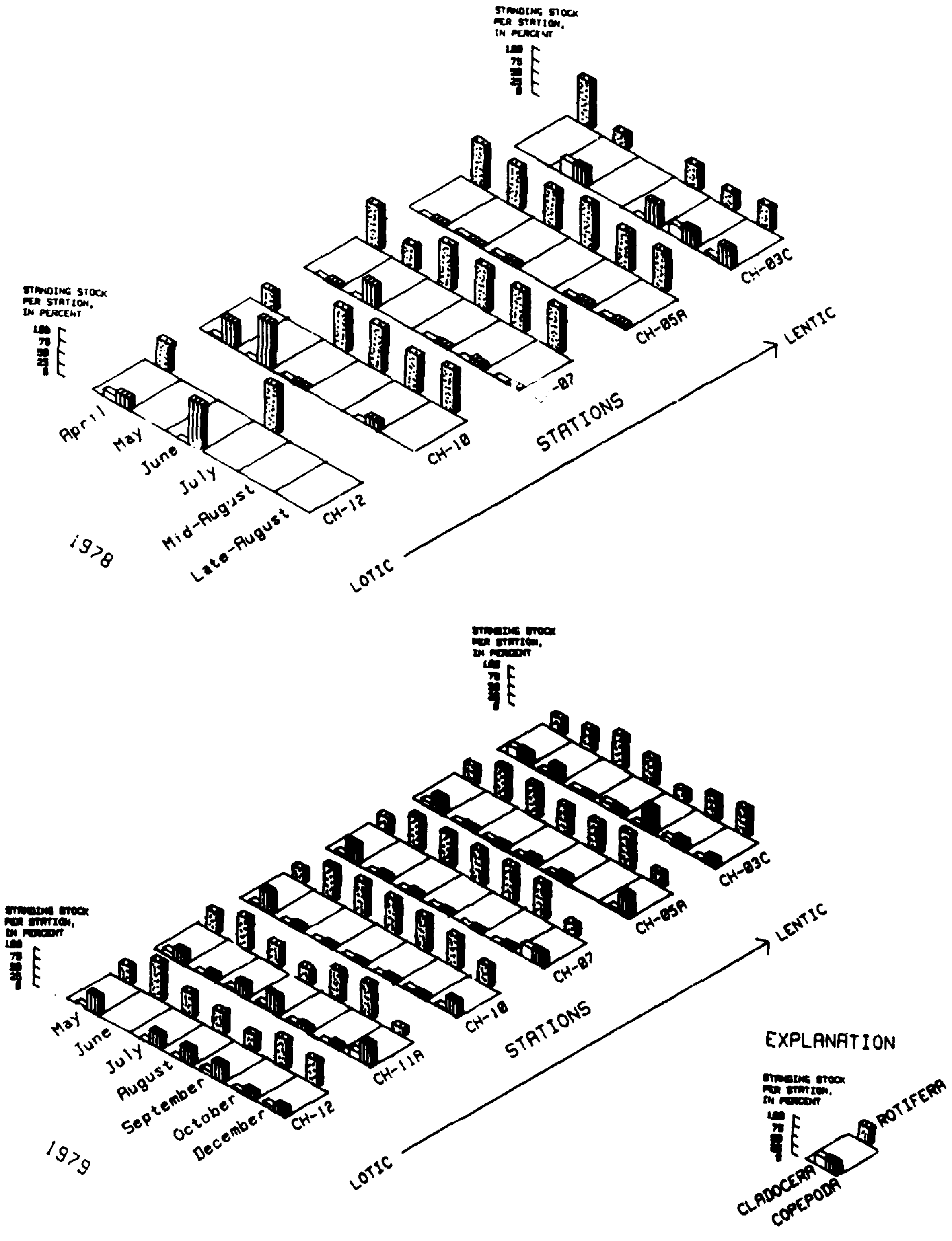


FIGURE 11.--Temporal and longitudinal variations of the major groups of zooplankton in West Point Reservoir, 1978 and 1979.

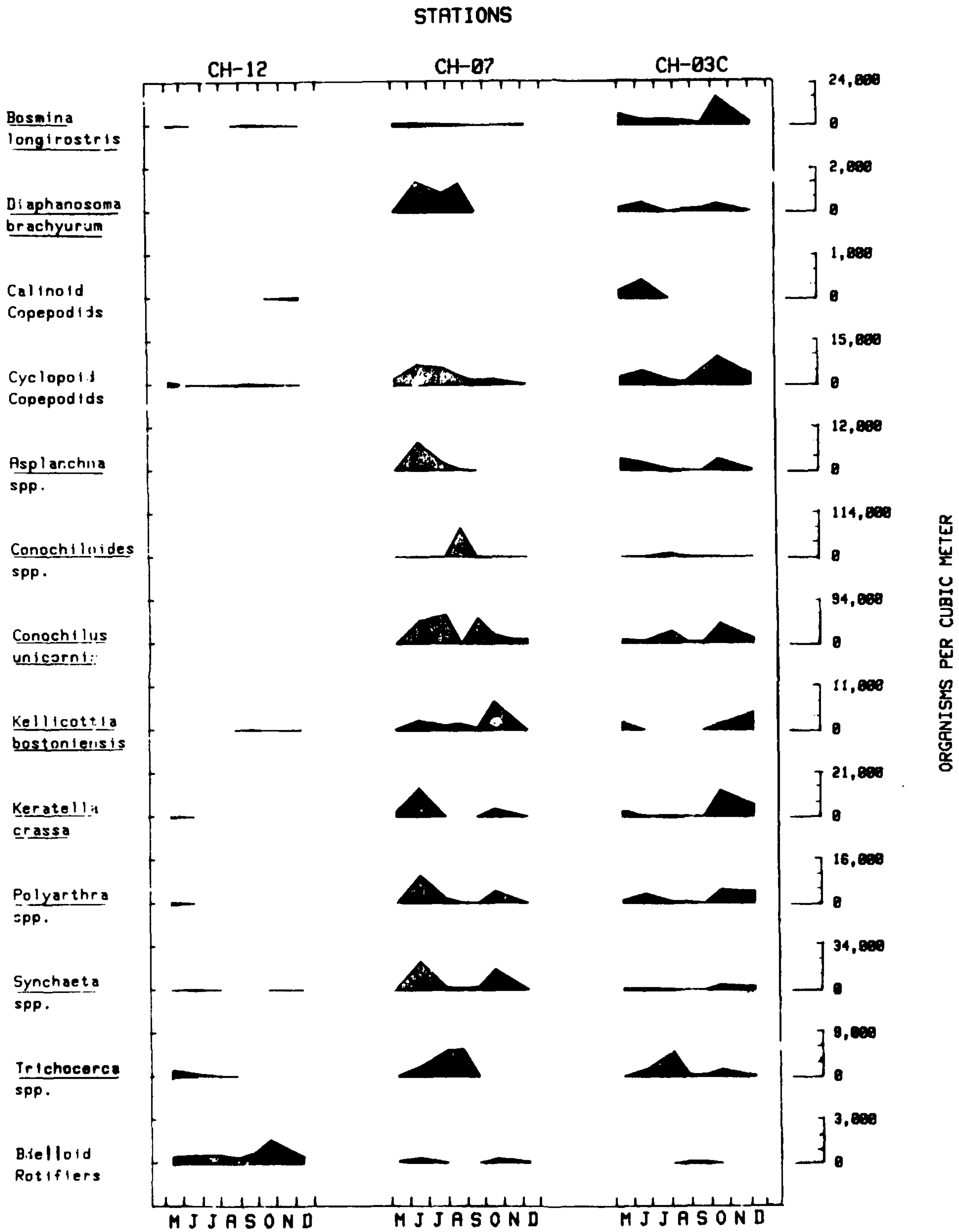


FIGURE 12.--Temporal and longitudinal distributions of selected zooplankton species at selected stations in West Point Reservoir, 1979.

for example, the *Bdelloid* rotifers (Hynes, 1970). Species richness and true plankters comprising the populations increased as the distance to the dam decreased (Appendix D-3).

The majority of species in figure 12 had population maxima in 1979 occurring in early summer and midautumn. At stations CH-05A and CH-03C in 1979, the highest species richness coincided with the early summer (June) and midautumn (October) population maxima (Appendix D-3). At CH-10 and CH-07, the highest species richness in 1979 coincided with summer (June, July, and August) population maxima. Population maxima of *Trichocerca* spp. and *Conochiloides* spp. appeared to coincide with the midsummer maxima of blue-green algae populations (figs. 7 and 12). Changes in the temporal and spatial distribution and composition of zooplankton populations are extremely complex; therefore, these generalizations should be interpreted with caution.

Fecal coliform -

The fecal coliform bacteria group (*Eschericia coli* and variants) is currently considered the most easily determined and reliable bacterial indicator of fecal contamination. Fecal coliform grow mainly in the intestines of warm-blooded animals, including man. Fecal coliform density is, therefore, indicative of the relative magnitude of fecal wastes from warm-blooded animals. Though generally nonpathogenic, fecal coliform bacteria indicate the probable presence of pathogens. Most water-quality standards are based on fecal coliform densities.

Fecal coliform densities were determined at only one station (CH-12), at the headwaters of the reservoir. Estimated counts at this station ranged from 20 colonies/100 mL in December 1979 to 5,100 colonies/100 mL recorded in April 1978 (Appendix D-6). For the 1978 and 1979 data-collection periods, the geometric mean was 300 colonies/100 mL. In most samples, an unknown organism was found to completely obliterate and interfere with fecal coliform growth and development on the membrane filter. Most of the fecal coliform densities should be considered low estimates, because of the interference during analysis. A need exists to determine whether this unidentified organism is pathogenic.

Fecal streptococci -

Fecal streptococci is another group of organisms which can be used to indicate potential fecal contamination. Fecal streptococci tend to survive longer in the environment than do fecal coliform and some investigators consider it a better indicator of fecal contamination. Fecal streptococci occur in large numbers in the enteric discharges of warm-blooded animals. They do occur in small numbers in cold-blooded animals and are rarely found in soil. In contrast to the fecal coliform, fecal streptococci is a member of a large group of organisms which can cause disease in man.

Fecal streptococci densities at station CH-12 ranged from 7 to 3,000 colonies/100 mL. Fecal streptococci densities at other stations within the reservoir were not found in significant numbers. The estimated counts ranged from less than 1 to 180 colonies/100 mL, with a geometric mean of 7 colonies/100 mL for the combined stations.

F.C./F.S. ratio -

Fecal coliform and fecal streptococci of themselves cannot indicate whether feces from which they came were of human or other warm-blooded animal origin. The ratio of fecal coliform to fecal streptococci (FC/FS) can be useful if it is important to differentiate between human and animal origins of enteric bacteria. This ratio, however, must be used with caution because the results are dependable only if the samples are collected where the time of travel downstream from the source of the bacteria is less than 24 hours (Millipore, 1973). However, this limitation has been overlooked in many investigations.

Figure 13 illustrates the range of values utilized in the interpretation of results listed in Appendix D-6. At station CH-12 the FC/FS ratio values ranged from 0.09 to 22.86. Most of the values, however, indicate that the fecal contamination was predominantly of human origin. These values, as all FC/FS ratio values calculated for the study, were not screened for compliance with time of travel restrictions. The results may be interpreted only as qualitative indicators of the source of the fecal material.

Figure 14 illustrates the longitudinal distribution of fecal coliform and fecal streptococci concentrations and FC/FS ratios in the Chattahoochee River below West Point Dam during maximum daily releases for selected periods. The highest concentrations of these organisms occurred during the late summer months (August 1978 and September 1979). Fecal coliform and fecal streptococci concentrations generally increased as the distance downstream from the dam increased. This was probably a result of municipal waste discharges from West Point and LaGrange, Ga., by way of Long Cane Creek and from Lanett, Ala. The high ratios (greater than or equal to two) during minimum daily release periods indicates a predominantly human source of the contamination. Fecal coliform concentrations tended to be lower during maximum daily release periods, probably as a result of dilution of municipal wastes by reservoir release water. Fecal streptococci, on the other hand, tended to be higher during maximum daily release periods. A great deal more data, however, would be required to substantiate these generalities.

Seston and ATP -

The concentrations of volatile seston and ATP (adenosine triphosphate) collected from West Point Reservoir during the 1978-1979 data-collection periods ranged from <0.1 to 23 mg/L and from 0.10 to 4.4 ug/L, respectively. The longitudinal distribution of volatile seston in relation to viable suspended organic matter as estimated by ATP is shown in figure 15. The relation between plankton biomass and volatile seston is not well defined because of the relatively large loads of allochthonous volatile seston from the Chattahoochee River. For example, the high concentration of volatile seston during the first week in May 1978 (fig. 15) can be attributed to a storm event which contributed large quantities of allochthonous seston to the reservoir. During stratified periods, volatile seston in the lentic section of the reservoir did, generally, coincide with plankton biomass. A cautious approach must be taken when interpreting and estimating plankton biomass from seston values because the seston usually includes varying amounts of non-living matter.

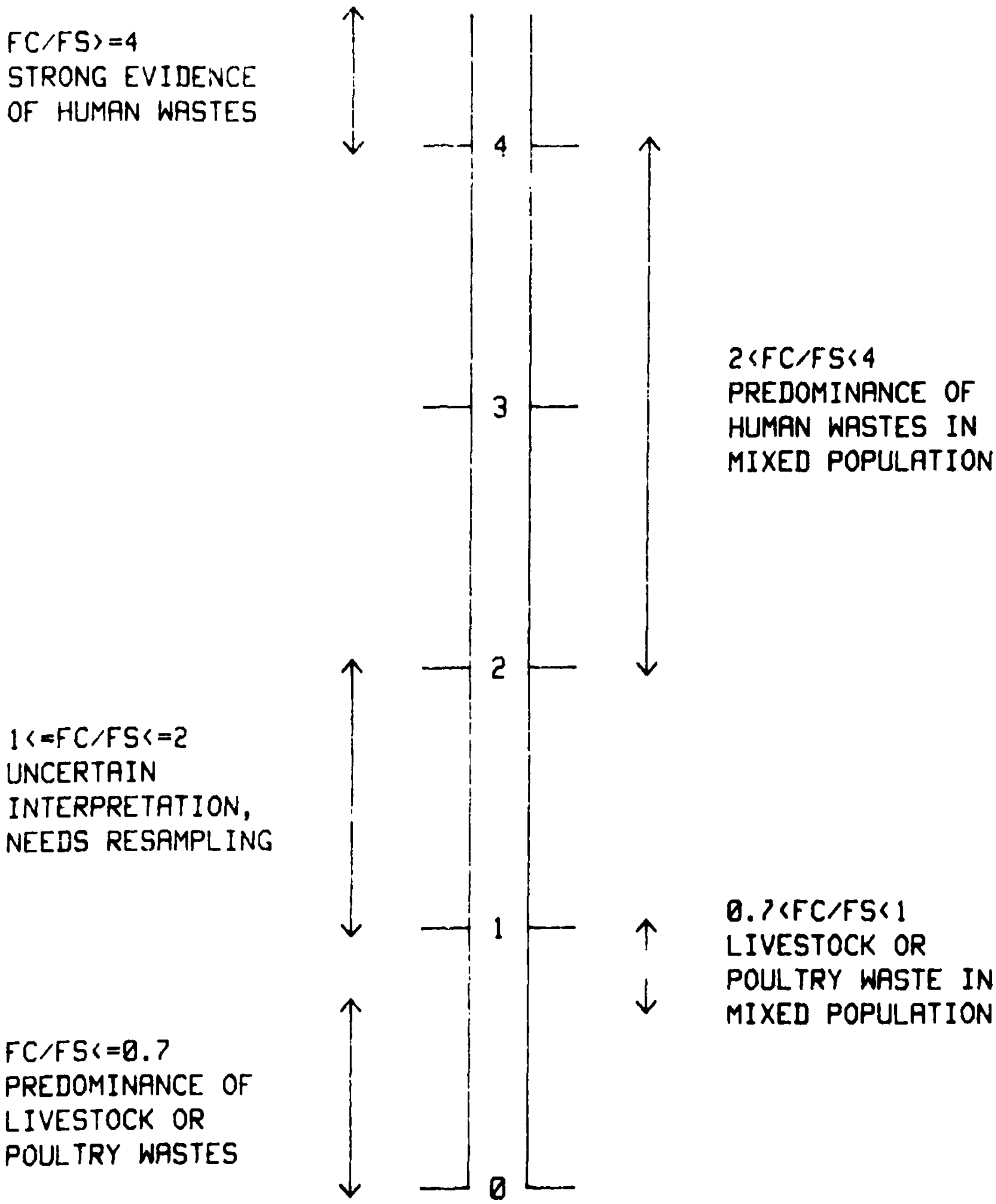


Figure 13.--Range of values utilized in the interpretation of fecal coliform to fecal streptococci ratio data.

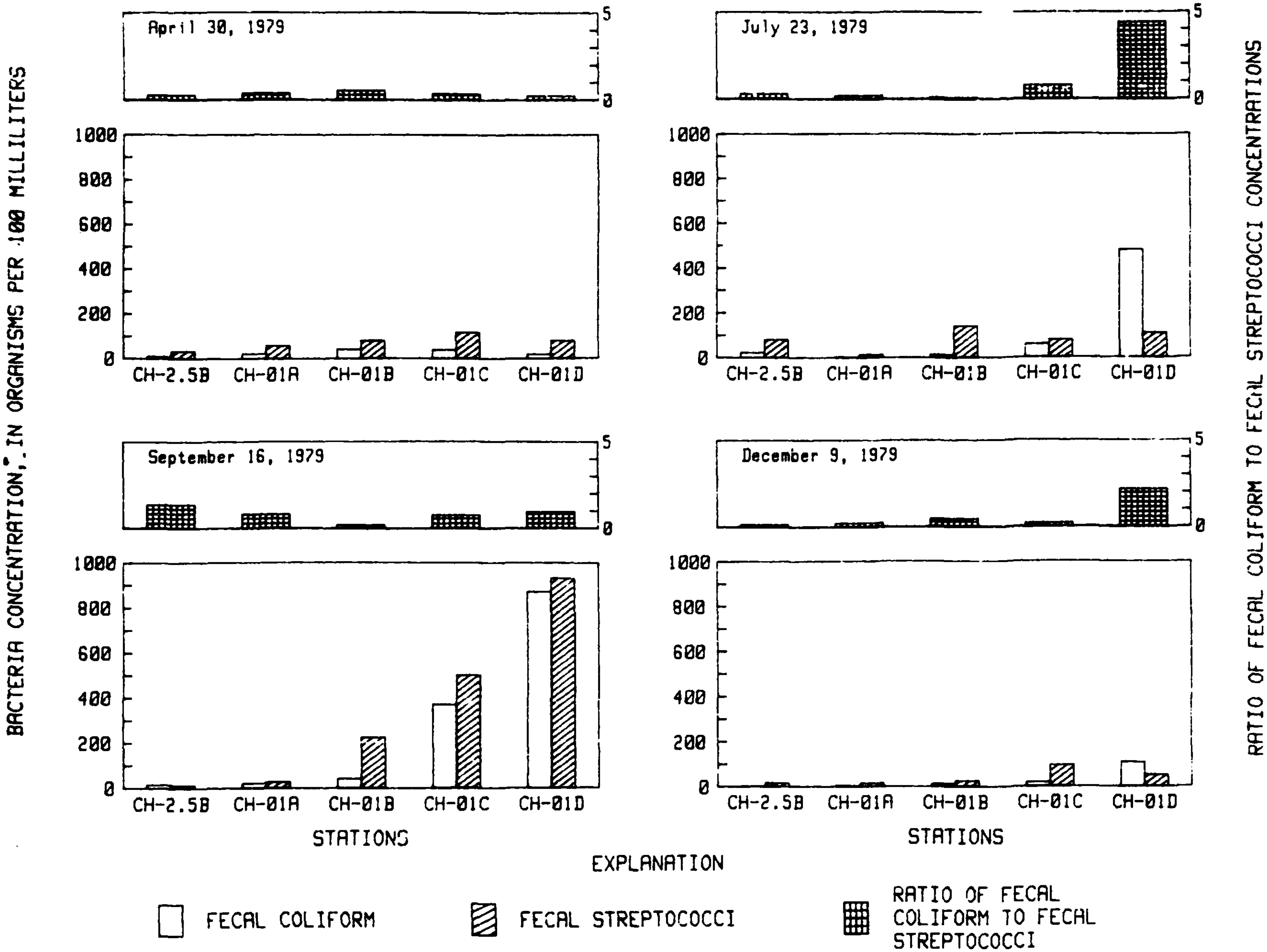


FIGURE 14.--Longitudinal distribution of fecal coliform and fecal streptococci concentrations and ratios of fecal coliform to fecal streptococci during maxi ' m release periods in the Chattahoochee River below West Point Dam for selected data-collection trips.

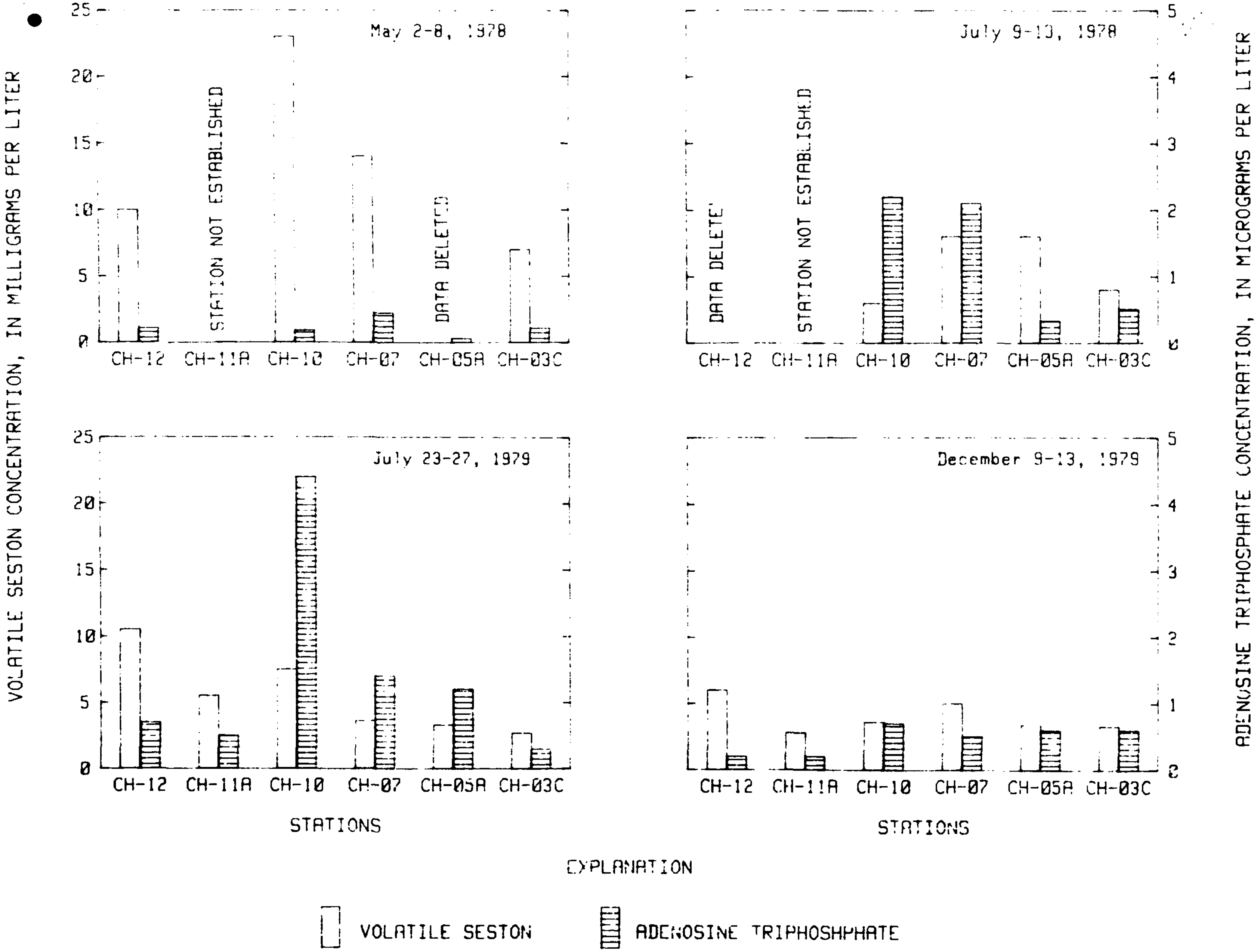


FIGURE 15.--Longitudinal distribution of volatile seston and adenosine triphosphate concentrations in the euphotic zone of West Point Reservoir for selected data-collection trips.

ATP represent only viable organic particulate material and is proportional to the total biomass. The universal occurrence and central role of ATP as the primary energy donor in living cells make it an excellent indicator of the presence of living material. ATP, generally, coincided with plankton biomass (fig. 15).

Benthic invertebrates -

Results of benthic invertebrate identification and enumeration are presented in Appendix D-4. The lotic section of the reservoir was characterized by higher generic richness and fauna indicative of a riverine environment. The dominant benthic invertebrates included Rheotanytarsus, Simulium, Tricorythodes, Hydropsyche, and Cricotopus. The lentic section had lower generic richness and benthic fauna indicative of limnetic environments. Cyrnellus, Limnochironomous, and Plumatella were the most abundant organisms.

Plumatella was the most conspicuous component of the benthic fauna in the lentic section. Plumatella is a representative of the phylum Bryozoa, class Ectoprocta. Another Ectoproctan genus, Pectinatella was also commonly found, developing on submerged objects in the shallow shore zone of West Point Reservoir. Both Plumatella and Pectinatella had population maxima occurring during the summer. Bryozoans are rarely animals of quantitative or economic importance in freshwater (Pennak, 1953). Sessile forms like Plumatella and Pectinatella, however, occasionally form massive colonies that can become conspicuous members of shallow reservoirs. Information on the ecology of species in these genera is scanty, therefore the significance concerning their presence is uncertain.

The phylum Arthropoda had the largest number of benthic invertebrate genera represented at the downstream river stations. The caddisfly Cheumatopsyche and the chironomid Polypedilum were the most abundant genera. The data available do not permit inferences on temporal and longitudinal variation in benthic community structure.

Benthic algae -

The Bacillariophyta (diatoms) dominated the phytobenthic community at station CH-01A (downstream from the reservoir), the only benthic algae sampling site. Achnanthes minutissimam, Gomphonema angustratum, Gomphonema gracile, Gomphonema parvulum, and Synedra rumpens were the most abundant species.

The Chattahoochee River below West Point Dam exhibits modifications of chemical and physical parameters that profoundly influence benthic communities. Possible controlling factors include temperature, flow, substrata, turbidity, and dissolved substances. However, the limited amount of data available do not permit inferences to be made as to the effects of reservoir releases and flow regulation on the benthic algae and benthic invertebrate communities of the Chattahoochee River below West Point Dam.

Bottom Material

Bottom material was analyzed for particle sizes that included clay, silt, sand, and very fine gravel-size classes. Particle-size distributions are given in Appendix E-1 and are graphically displayed in Appendix E-2. Sand-sized particles (73-97 percent of total) were predominant in bottom material of the lotic section stations, CH-12 and CH-10. In contrast, bottom material from the upper part of the lentic section, stations CH-7, CH-5, and CH-8, consisted primarily of silt- and clay-sized particles (59-95 percent of total). Bottom material from the lower part of the lentic section, stations CH-13 and CH-03C, varied in particle size from fine sand to silt plus clay. Bottom material collected at the river stations downstream of West Point Dam had a particle-size distribution of sand and small gravel. No fine material was detected in any river sample except for a 30-percent fraction at station CH-01A in 1979.

Results of bottom-material analyses for nutrients, trace metals, oil and grease, and volatile solids are presented in Appendix E-3. Most constituent concentrations were low. However, measurable concentrations of total iron (3,700 to 31,000 ug/g), total phosphorus (250 to 2,200 mg/kg), total organic carbon (10,000 to 49,000 mg/kg), and volatile solids (31,200 to 169,000 mg/kg) were found in bottom material from the lentic section of the reservoir. The highest concentrations of these constituents occurred where silt and clay particles constituted most of the bottom material.

Appendix E-4 contains the results of analyses for chlorinated hydrocarbons in the bottom material of West Point Reservoir. Most of the chlorinated hydrocarbons for which analyses were performed were not present in the bottom material sampled in 1978 and 1979. The constituents that were detected followed the same spatial distribution pattern as that of the chemical constituents. Measurable concentrations of PCB's (34 to 740 ug/kg) and chlordane (16 to 210 ug/kg) were found in the bottom material from the lentic section of the reservoir. The highest concentrations of these constituents occurred where silt and clay particles constituted most of the bottom material.

Fish Tissue Analyses

Results of the fish tissue analyses for selected substances that form persistent and toxic residues in the environment are presented in Appendix F. Most of the tissue samples contained measurable amounts of chlorinated hydrocarbons and trace metals.

PCB's (polychlorinated biphenyls), chlordane, and DDT and its degradation products are especially notable because of their potential concern to human health. PCB concentrations ranged from less than 0.1 to 3,800 ug/kg. Concentrations of DDT and its derivatives ranged from less than 0.1 to 49 ug/kg. Chlordane concentrations ranged from less than 0.1 to 280 ug/kg.

Zinc, having concentrations ranging from 2 to 180 ug/kg, was the most abundant selected trace metal in fish tissue. The concentrations of other selected trace metals were much less, ranging from less than 0.1 to 0.8 ug/kg.

DATA DISCUSSION

Reservoir Stratification and the Effects on Water Quality

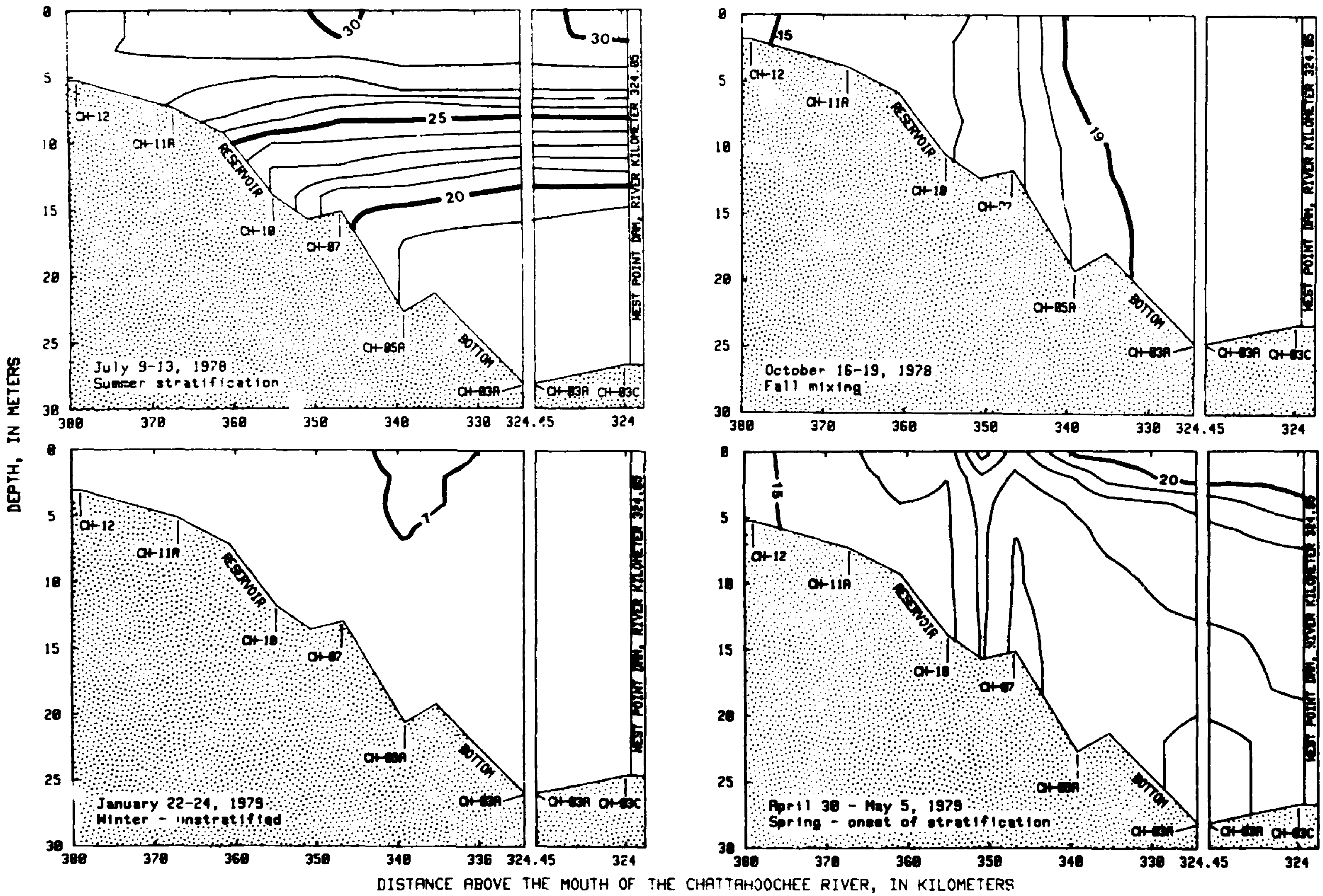
Thermal Stratification

West Point Reservoir is a monomictic system that undergoes an annual thermal stratification-destratification cycle in four distinct stages: (1) the onset of stratification (thermal density layering) in the spring, (2) a stratified period during the summer, (3) a fall mixing period or turnover, and (4) a winter unstratified period. The reservoir is weakly stratified during the summer. The stability and duration of summer stratification depend on inflow water discharge, inflow water temperature relative to reservoir water temperature, atmospheric temperature, wind velocity, cloud cover, reservoir morphometry, and residence time.

Field measurements of water temperature provide a qualitative picture of stratification and mixing patterns. The four stages of the stratification-destratification cycle in the main channel of West Point Reservoir are shown in figure 16. Figure 16 presents a series of plots of water temperatures in the main channel of West Point Reservoir as a function of depth and distance. Each line represents a constant water temperature with respect to depth and distance along the reservoir reach. Each individual graph represents the spatial (longitudinal) change in water temperature from Franklin, Ga. (station CH-12), to the dam pool area (station CH-03C). Stratification during the summer was typified by horizontal temperature isopleths (July 1978). Under these circumstances, inflow water from the Chattahoochee River seems to follow an intermediate horizontal flow plane of similar density. During the stratification period, the depth of this interflow probably fluctuates vertically with periodic changes in river temperature. Rapid fluctuations in river temperature at CH-12 are caused by the release of cool water from upstream reservoirs during the minimum to maximum daily release regulation cycle (Appendix A-4.1). The fall mixing period is illustrated by the nearly vertical temperature isopleths shown in the graph for October 1978. Mixing usually does not occur until the fall, when advective atmospheric cooling of the surface water and wind-generated thermal convection currents have lessened the temperature difference between the surface and bottom. After complete mixing, the entire reservoir was essentially the same temperature, as shown by the graph for January 1979. In the springtime, thermal stratification occurs, as illustrated by the graph for April-May 1979. The progressive warming of the water by atmospheric advection at the surface of the reservoir allowed the reestablishment of a vertical density gradient.

In summary, the temperature data indicate that the mixing of inflow water from the Chattahoochee River with reservoir water depended on the orientation and extent of thermal density gradients in the reservoir. During the wintertime, when the temperature isopleths were vertical (fig. 16), mixing of inflow water occurred rapidly throughout the whole water column. In the summer months, the more dense (cooler) water of the river was confined as an interflow to the part of the water column in the reservoir that had a similar density.

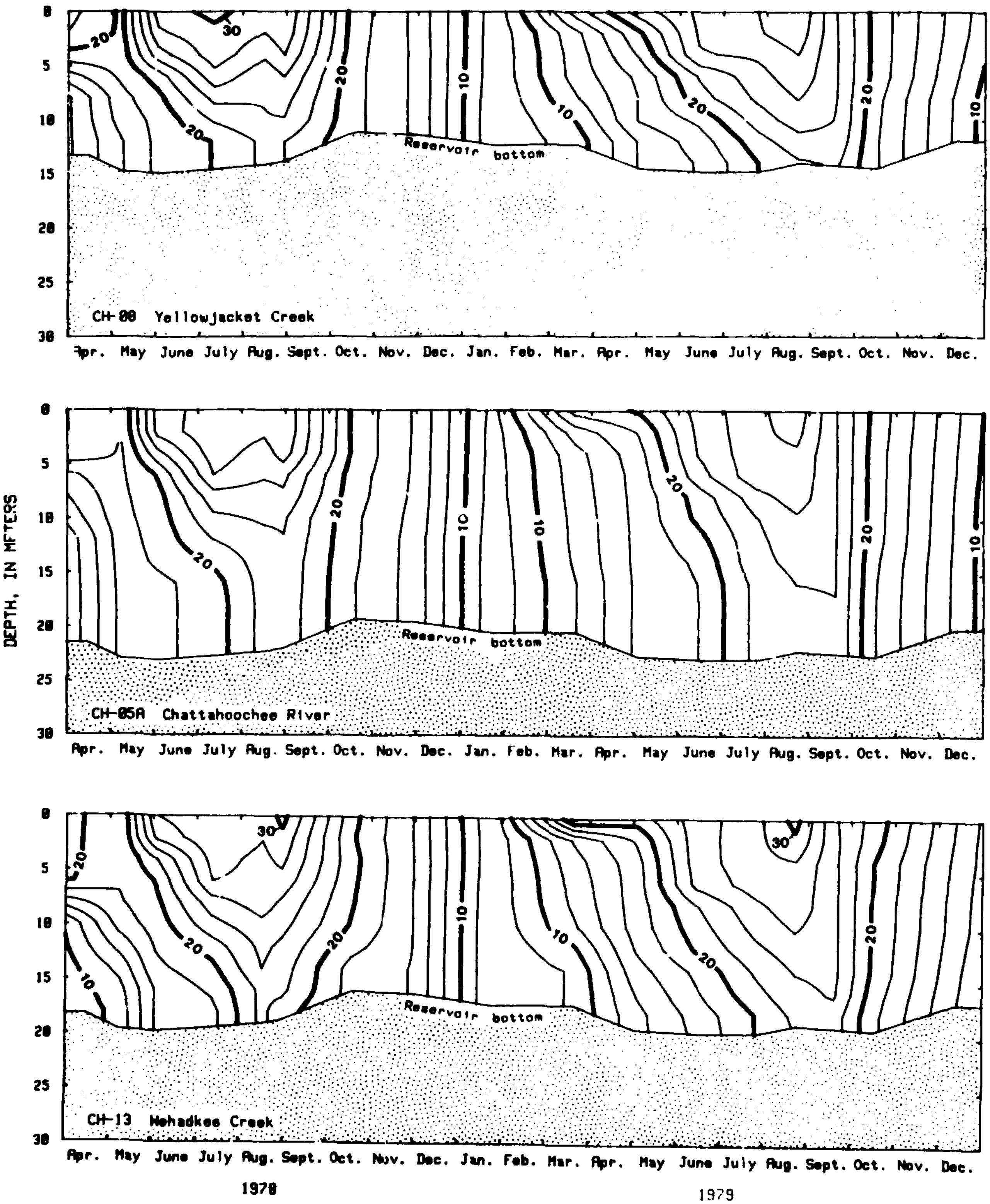
Yellowjacket and Wehadkee Creek tributaries had seasonal temperature patterns similar to those in the main channel. The seasonal temperature patterns of these two tributaries and a midreach main channel station (CH-05A) are shown in figure 17. In both 1978 and 1979 the water column temperatures at the three stations were similar. However, at stations CH-08 and CH-13, the water columns began to stratify earlier than at station CH-05A.



EXPLANATION

— 7 — LINE OF EQUAL WATER TEMPERATURE--Interval 1 degree Celsius

FIGURE 16.--Comparisons of distribution patterns of water temperature in West Point Reservoir for selected data-collection trips.



EXPLANATION

—10— LINE OF EQUAL WATER TEMPERATURE--Interval 2 degrees Celsius

FIGURE 17.--Comparisons of water temperatures at selected main channel-tributary stations in West Point Reservoir, April 1978 - December 1979.

Numerous studies have shown that a reservoir can significantly affect the water quality downstream from the dam. The data indicate that West Point Reservoir affected downstream water quality primarily as a result of changes in the chemical nature of the water column at the dam pool, brought on by seasonal stratification and dissolved-oxygen depletion. Withdrawal depths at West Point Dam cannot be altered to control downstream water quality, because the intakes for both the main and the service penstocks are located in a fixed position near the reservoir bottom and differ by only 1.52 m in altitude. Thus, little difference occurs in the quality of the released water during periods of maximum and minimum flows through the penstocks.

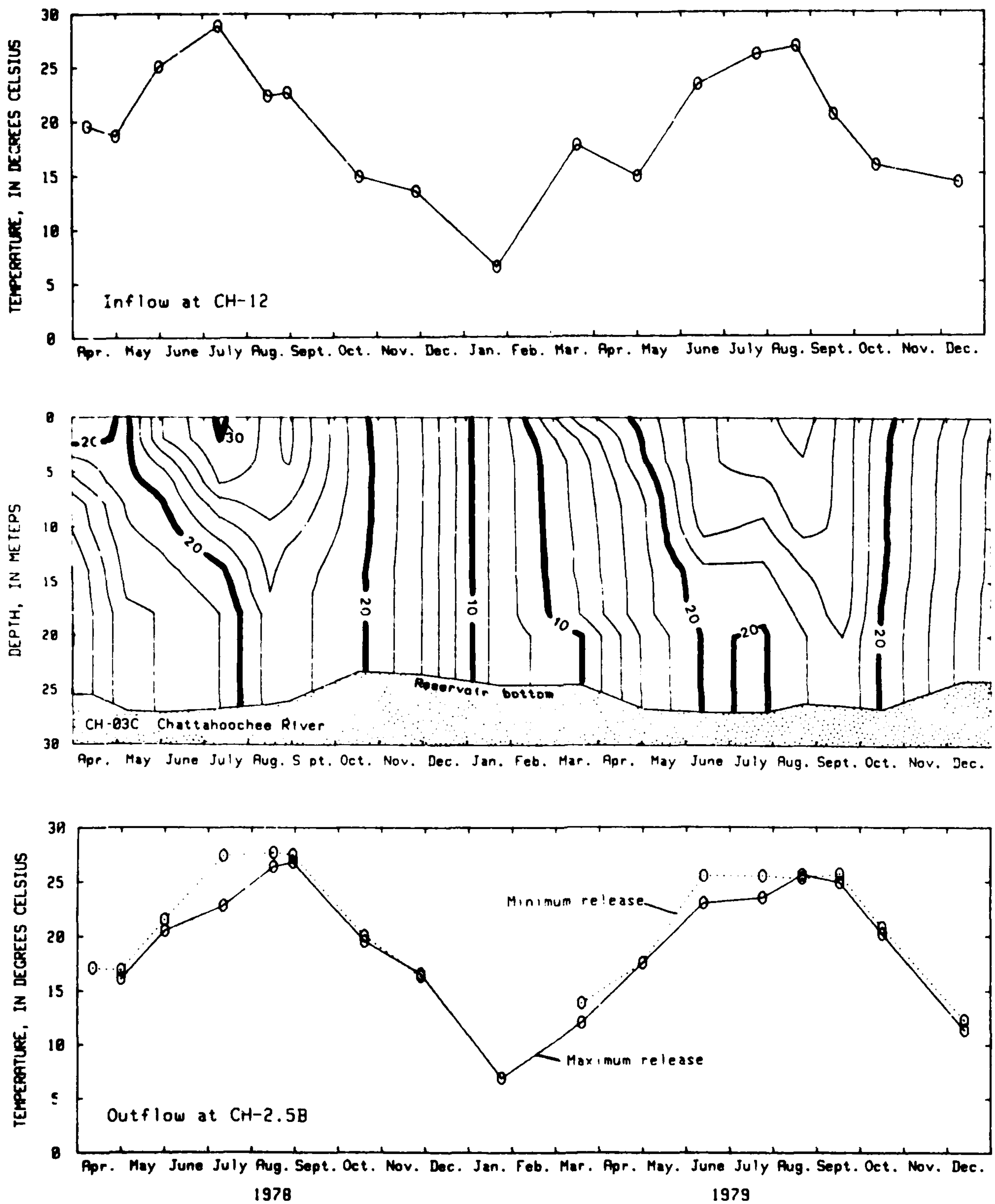
Observed water temperatures in the Chattahoochee River downstream from West Point Dam were dependent on the temperature of the bottom water at the dam pool and on the ambient air temperature. Inflow water temperatures at Franklin, Ga. (station CH-12), minimum and maximum daily release outflow water temperatures measured at station CH-1.5B, and the seasonal temperature distribution in the water column at dam pool station CH-03C are presented in figure 18. As expected, observed temperatures at station CH-2.5B were similar to those measured in the bottom water of the dam pool. Maximum daily release and minimum daily release temperatures at station CH-2.5B (outflow) are generally shifted to the right of the temperatures for station CH-12 (inflow). The temperature shift indicates the seasonal warming and cooling of outflow water lagged somewhat behind that of the inflow. Since water was always withdrawn from the same level, temperature differences between minimum and maximum daily release periods were generally small. However, these temperature differences were greater during periods when there was a substantial difference between the ambient air temperature and the water temperature of hypolimnion at the dam pool. River water was more rapidly warmed by the atmosphere during minimum daily release periods than during maximum daily release periods (fig. 18).

Dissolved-Oxygen Enrichment-Depletion Cycle

The distribution of DO (dissolved oxygen) in West Point Reservoir was strongly influenced by stratification and mixing. During the study period, severe hypolimnetic oxygen deficits occurred in the spring and summer months because stratification curtailed vertical mixing. The oxygen demand in the hypolimnion was high, due to decomposition of settled particulate organic matter and benthic biological and chemical oxygen demand.

The seasonal aspects of the dissolved-oxygen cycle in the main channel of the reservoir are shown in figure 19. Marked metalimnial concentration gradients indicative of a highly stratified system are evidenced by the compressed horizontal dissolved-oxygen isopleths seen in the July graph.

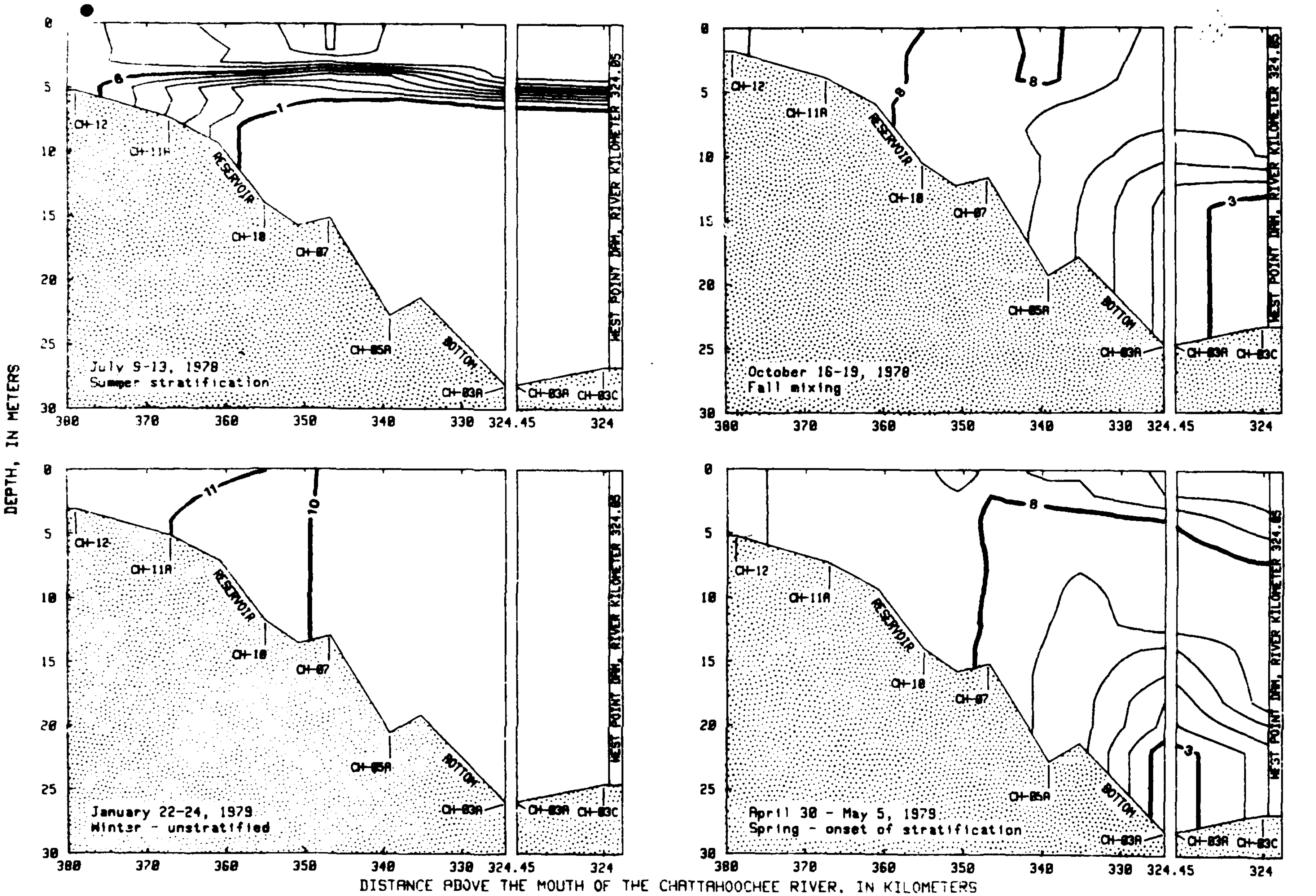
For both 1978 and 1979 stratified periods, the highest DO concentration in the epilimnion occurred in the reach between stations CH-10 and CH-07. The supersaturated conditions were the result of phytoplankton production. The effects of high concentrations of phytoplankton, as measured by chlorophyll <u>a</u>, on the pH and DO concentrations at the surface of the lentic section of the reservoir are illustrated in figure 20. Because the photosynthetic process requires carbon dioxide, a decrease in carbon dioxide produces a decrease in the hydrogen ion concentration and an increase in pH. The subsequent release of dissolved oxygen in this process accounts for the high DO concentrations in the euphotic zone.



EXPLANATION

—10— LINE OF EQUAL WATER TEMPERATURE--Interval 2 degrees Celsius

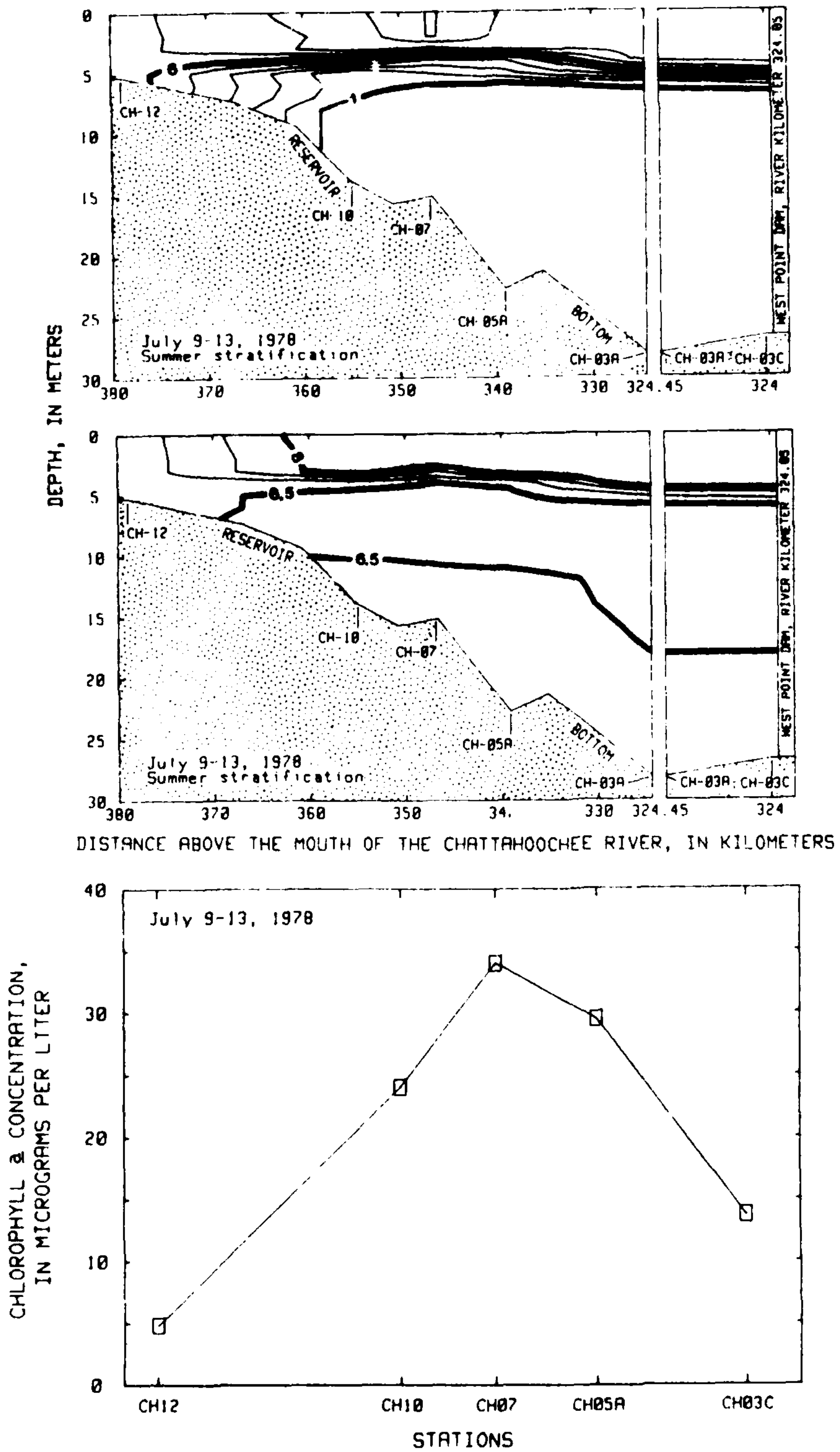
FIGURE 10.--Comparisons of water temperatures of inflow to West Point Reservoir with seasonal distribution patterns of water temperatures at the dam pool and with water temperatures in minimum and maximum release from the reservoir, April 1978 - December 1979.



EXPLANATION

—11— LINE OF EQUAL DISSOLVED-OXYGEN CONCENTRATION--Interval 1 milligram per liter

FIGURE 19.--Comparisons of distribution patterns of dissolved-oxygen concentrations in West Point Reservoir for selected data-collection trips.



EXPLANATION

TOP GRAPH: —6.0— LINE OF EQUAL DISSOLVED-OXYGEN CONCENTRATION--Interval 1 milligram per liter

MIDDLE GRAPH: —6.5— LINE OF EQUAL pH--Interval 0.5 unit

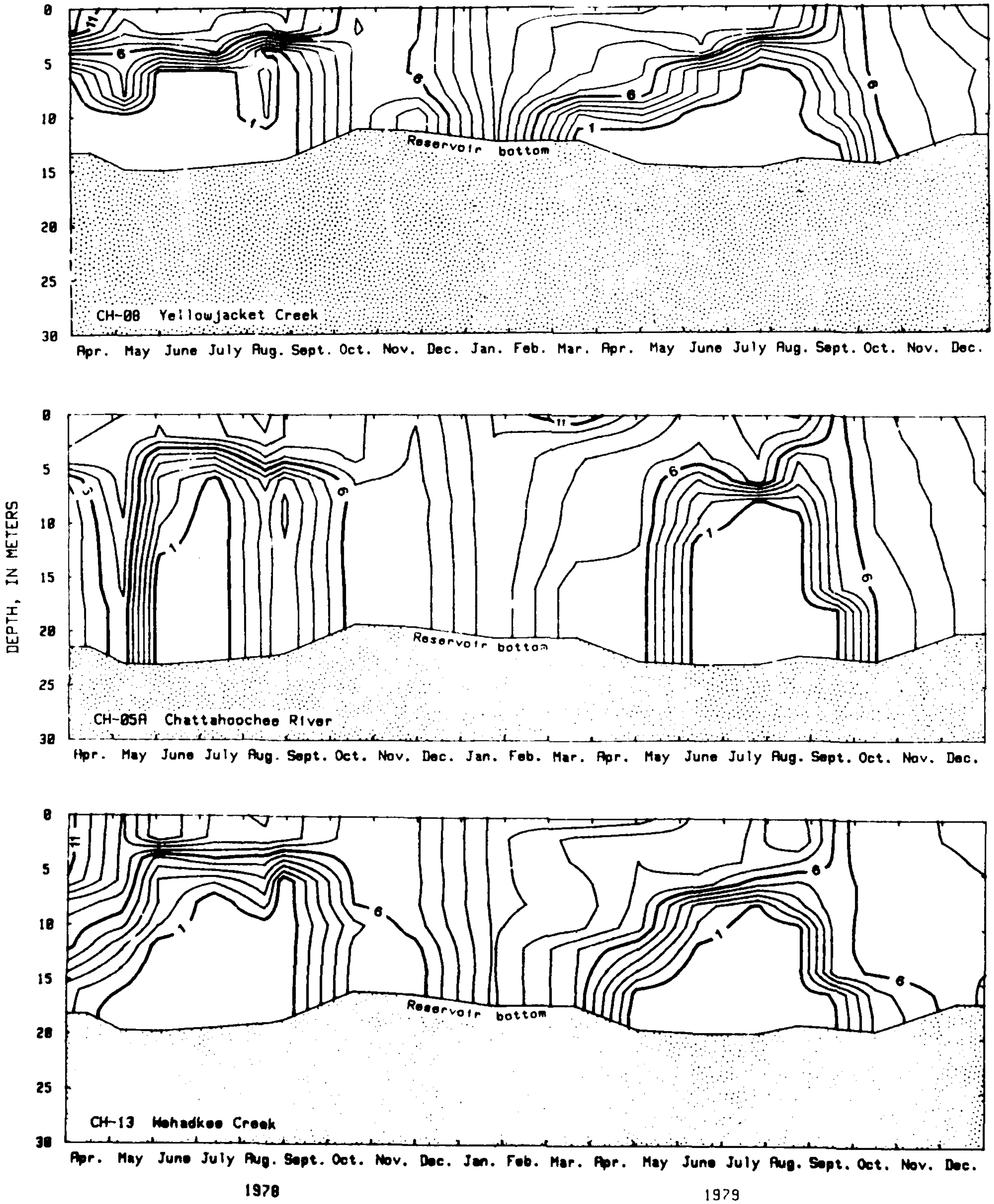
FIGURE 20.--Comparisons of distribution patterns of dissolved-oxygen concentrations and pH values with chlorophyll a concentrations in the euphotic zone of West Point Reservoir, July 9-13, 1978.

In contrast, hypolimnetic anoxia is partially a result of downward migration of autochthonous organic matter when plankton production is high. The oxidation and respiration process in the hypolimnion consumed the available oxygen and thus, without adequate mixing, created low DO concentrations (fig. 19). During July 1978, the main channel was anoxic below a depth of about 10 m from station CH-10 downstream to the dam pool (station CH-03C). It is likely that relatively large amounts of particulate cellular material settled to the hypolimnion in the reach between CH-10 and CH-05, and exerted a high oxygen demand. Conditions were not as severe during July 1979, when the anoxic part of the hypolimnion extended below a depth of about 10 m from about halfway between stations CH-07 and CH-05A to the dam pool (station CH-03C).

Hypolimnetic dissolved-oxygen deficits persisted until vertical mixing occurred in the fall. The October 1978 graph in figure 19 shows the dissolved-oxygen conditions in the main channel of West Point Reservoir during the mixing period. Sufficient epilimnial cooling just prior to October 1978 caused a disruption of the thermocline, which allowed vertical mixing to occur throughout most of the main channel reach. Only the bottom water near the dam pool (station CH-03C) remained near anoxia during October 16-19, 1978. In January 1979, the entire main channel was well mixed. The April-May 1979 graph shows the distribution of dissolved oxygen during the initial stages of the 1979 stratification period, which occurred in the springtime.

Hypolimnetic dissolved-oxygen depletion in Yellowjacket and Wehadkee Creek tributaries was more pronounced than in the main channel, partially because thermal stratification persisted longer in the two tributaries (fig. 21). These tributaries received small inflows and, therefore, were more lacustrine than the main channel because the metalimnion was not subjected to the destabilizing influence of higher velocity inflow and short-term temperature fluctuation caused by regulation of the Chattahoochee River. This observation suggests that water-quality problems associated with dissolved-oxygen depletion would have been more pronounced in the tributaries than in the main channel. The depth-time dissolved-oxygen isopleths of Yellowjacket Creek (station CH-08) show that anoxic conditions were present from April through August 1978 and from March through September 1979, or nearly 50 percent of the data-collection period. In Wehadkee Creek (station CH-13), the hypolimnion was anoxic from May through August 1978 and from May through September 1979, or about 40 percent of the time. By comparison, the bottom water at station CH-05A in the main channel was anoxic only during June and July 1978 and from June through September 1979, or about 20 percent of the time.

One of the more critical degradations in water quality that occurred downstream from West Point Dam was the lower DO concentration caused by discharge of anoxic water during periods of stratification. For a discussion of state standard violations, please refer to the Water-Quality Criteria section of this report. The bottom water at the dam pool (station CH-03C) was anoxic from the end of May through the middle of September 1978 and during June and July 1979. Discharge of this anoxic water resulted in dissolved-oxygen concentrations that reached a summertime minimum of 2.5 mg/L at station [illegible] (fig. 22). During summer the concentrations during maximum daily releases were lower than concentrations during minimum daily releases because reaeration of minimum daily release discharge occurred more rapidly than during maximum daily release discharge (fig. 23).



EXPLANATION

—1— LINE OF EQUAL DISSOLVED-OXYGEN CONCENTRATION--Interval 1 milligram per liter

FIGURE 21.--Comparisons of dissolved-oxygen concentrations at selected main channel-tributary stations in West Point Reservoir, April 1978 - December 1979.

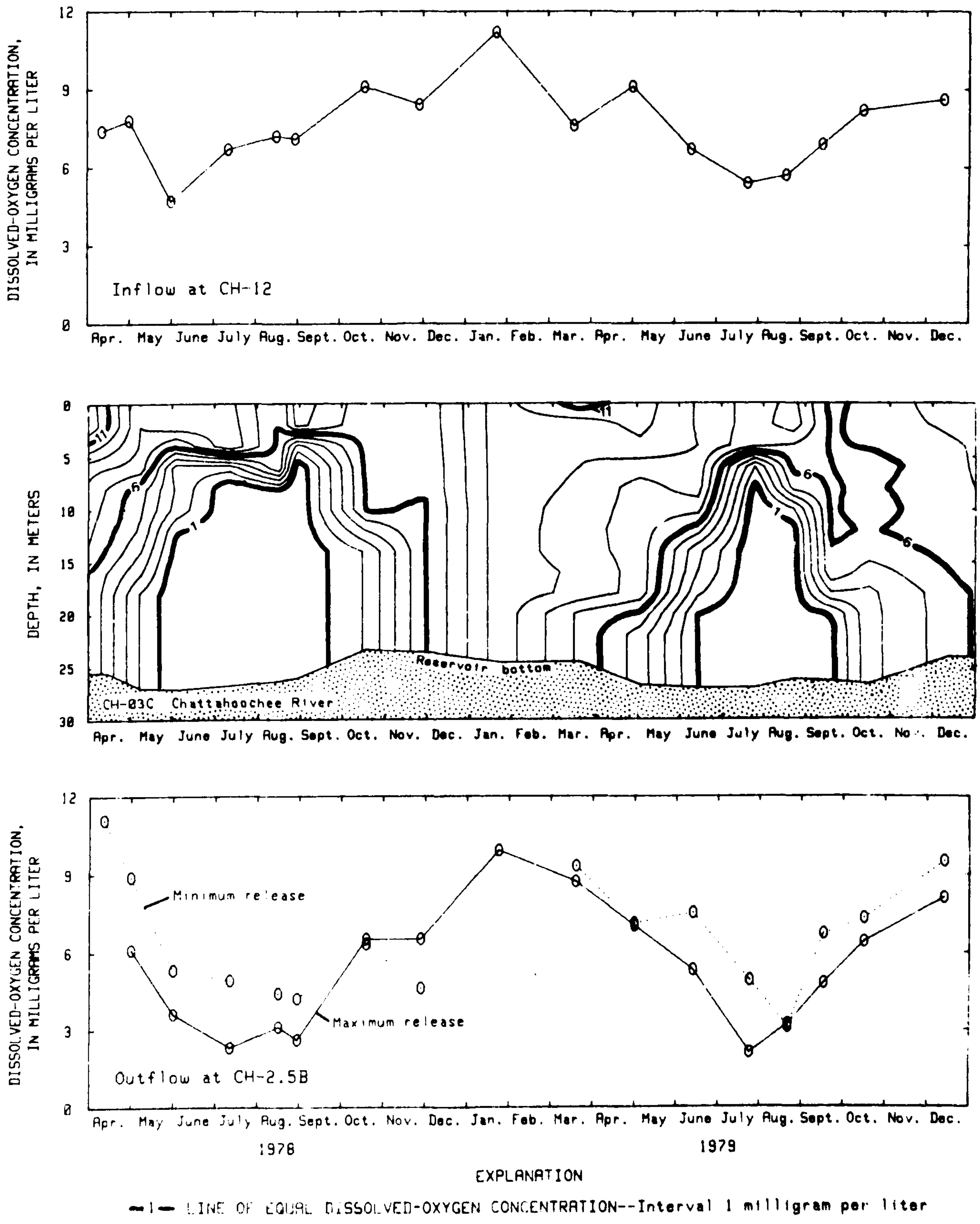


FIGURE 22.--Comparisons of dissolved-oxygen concentrations in inflow to West Point Reservoir with seasonal distribution patterns of dissolved-oxygen concentrations at the dam pool and with dissolved-oxygen concentrations in minimum and maximum release from the reservoir, April 1978 - December 1979.

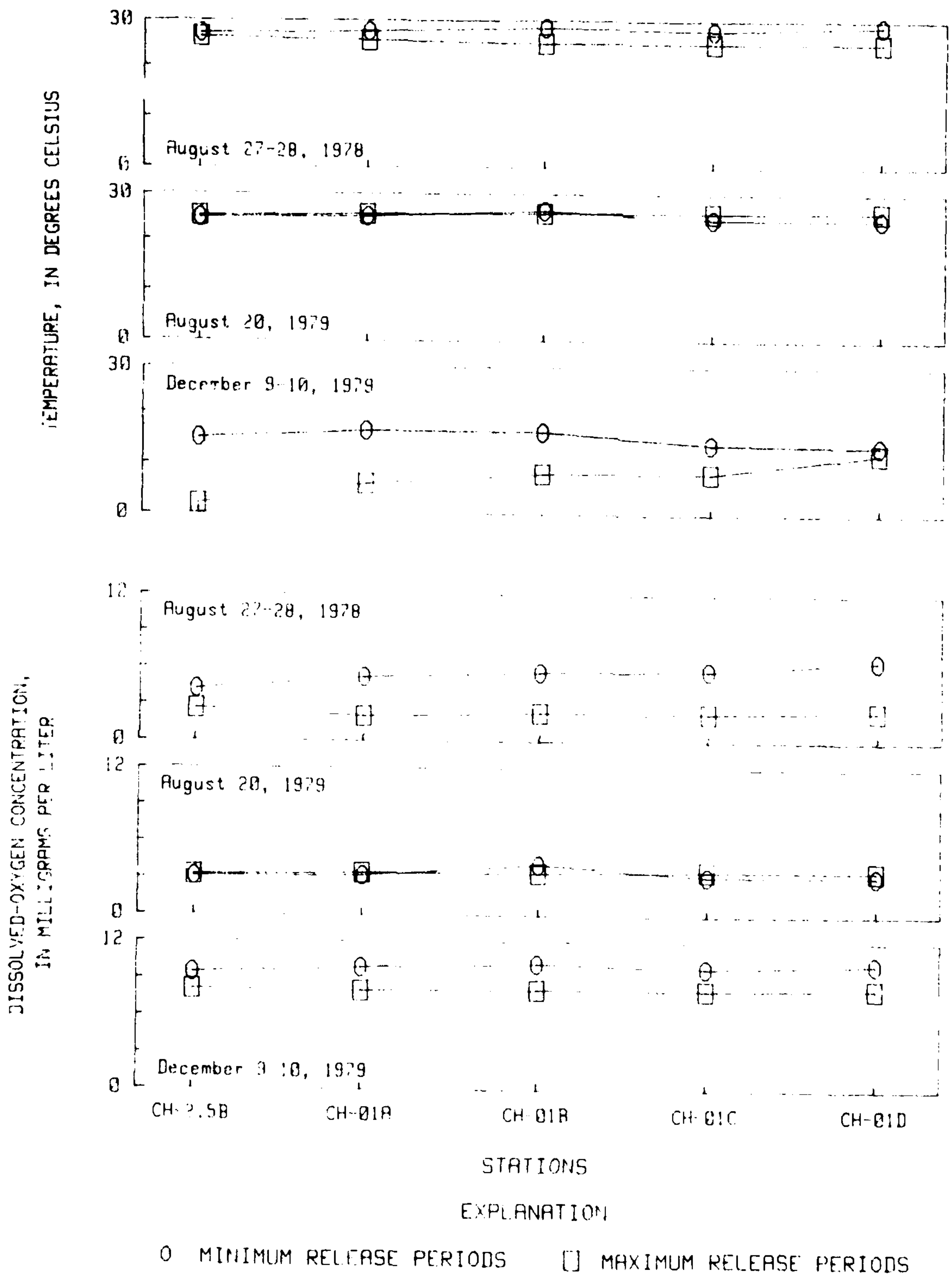


FIGURE 23. --Longitudinal distribution of temperature and dissolved-oxygen concentrations in the Chattahoochee River below West Point Dam for selected data-collection trips.

Nonfilterable Residue

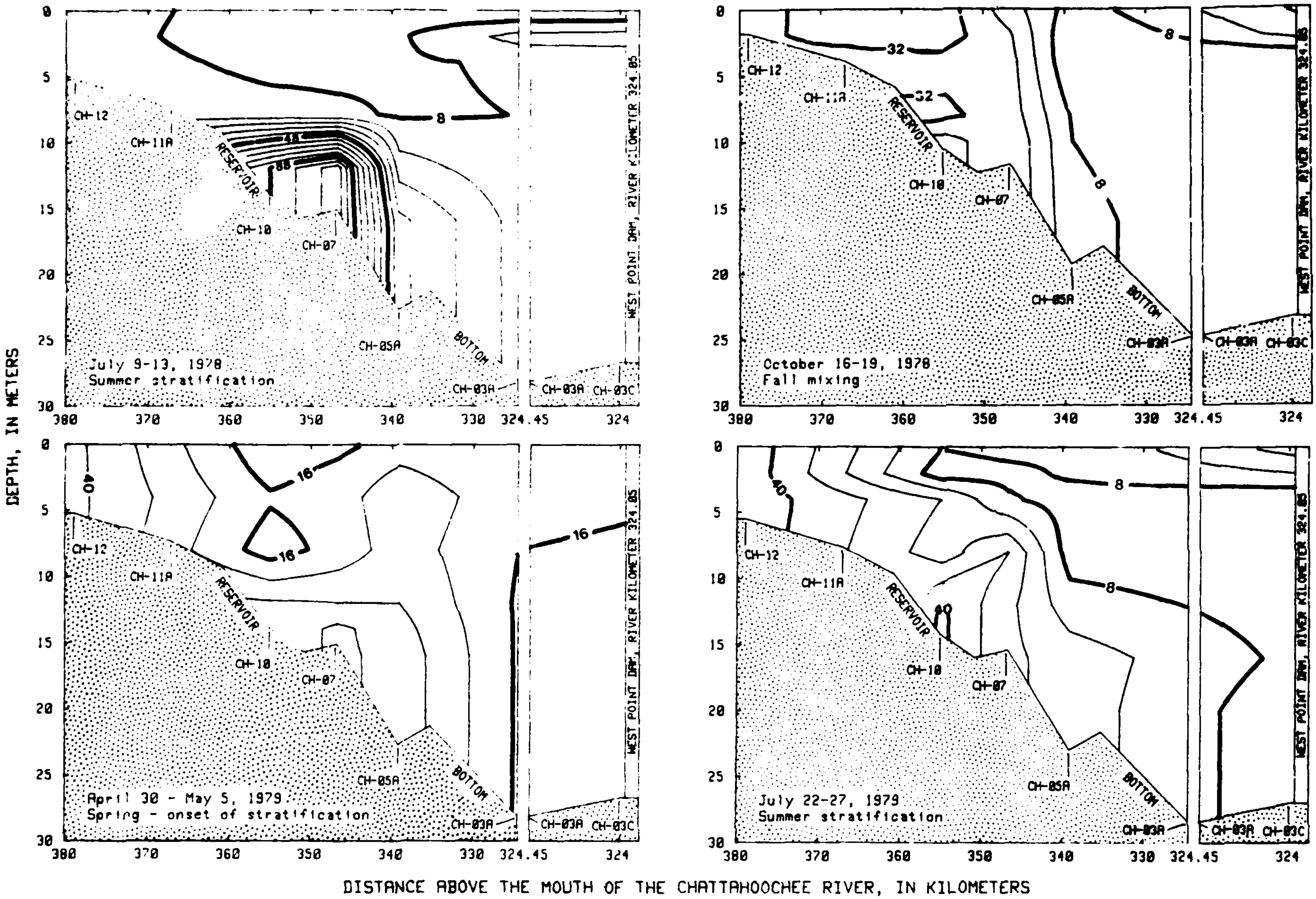
Nonfilterable residue in West Point Reservoir has ecologically important effects on the aquatic communities in the reservoir as well as economically important effects on the water users downstream from West Point Dam. Settling of nonfilterable residue on fish eggs interferes with osmotic exchange processes and, thus, increases mortality rates (National Academy of Sciences, 1974). Silt and clay particles also are effective carriers of charged particles such as ferric and manganese ions (Feltz, 1980). Solubilization of sediment-bound iron and manganese during anoxic conditions in the dam pool of West Point Reservoir resulted in objectionable concentrations of these elements in downstream public water supplies. (Refer to Water-Quality Criteria section.) Deposition of sediment-bound organic pesticides in various parts of the reservoir also poses a serious threat to the aquatic community and human consumers (Feltz, 1980). These residues are incorporated in the food chain by the benthic community and bottom-feeding fish. (Refer to Fish Tissue Quality section.)

Seasonal changes in the nature and distribution of nonfilterable residue observed in West Point Reservoir were caused by (1) the increased particulate loading to the upstream part of the main channel from storm runoff and power pulsing (Faye and others, 1978), and (2) accumulation of particulates in the hypolimnion that originated from biological productivity. The first process is primarily velocity-dependent and thus is affected by river inflow in relation to the pool elevation of the reservoir. High discharges of the Chattahoochee River at Franklin, Ga., and low pool elevations produced the highest nonfilterable residue loads. The second process occurred during periods of high epilimnetic productivity when the reservoir was thermally stratified.

Both processes are illustrated for the main channel by the depth-reservoir reach isopleths of nonfilterable residue in figure 24. Low-flow conditions and higher pool elevations during the July 9-13, 1978, data-collection period resulted in a decreased loading of nonfilterable residue due to lower inflow velocities. Though particulate loading to the main channel was low, high concentrations of suspended matter were observed in the hypolimnion between stations CH-10 and CH-07. Steep vertical concentration gradients (compressed horizontal isopleths) indicate possible interflow and much particulate settling. These particulates were most likely of biological origin. Steep horizontal gradients (compressed vertical isopleths) indicate that the reach of channel between stations CH-07 and CH-05A was functioning as a major sediment sink for the reservoir.

On the other hand, the intense storm activity and higher flows during the April 30-May 5, 1979, sampling period resulted in higher concentrations of particulates in the lotic section of the main channel (fig. 24). At this time, the reservoir was just beginning to stratify. Hypolimnial accumulation of particulates was not as pronounced as during the July data collection period, probably because a shorter residence time gave the nonfilterable residue a lesser chance to settle and accumulate in the reservoir.

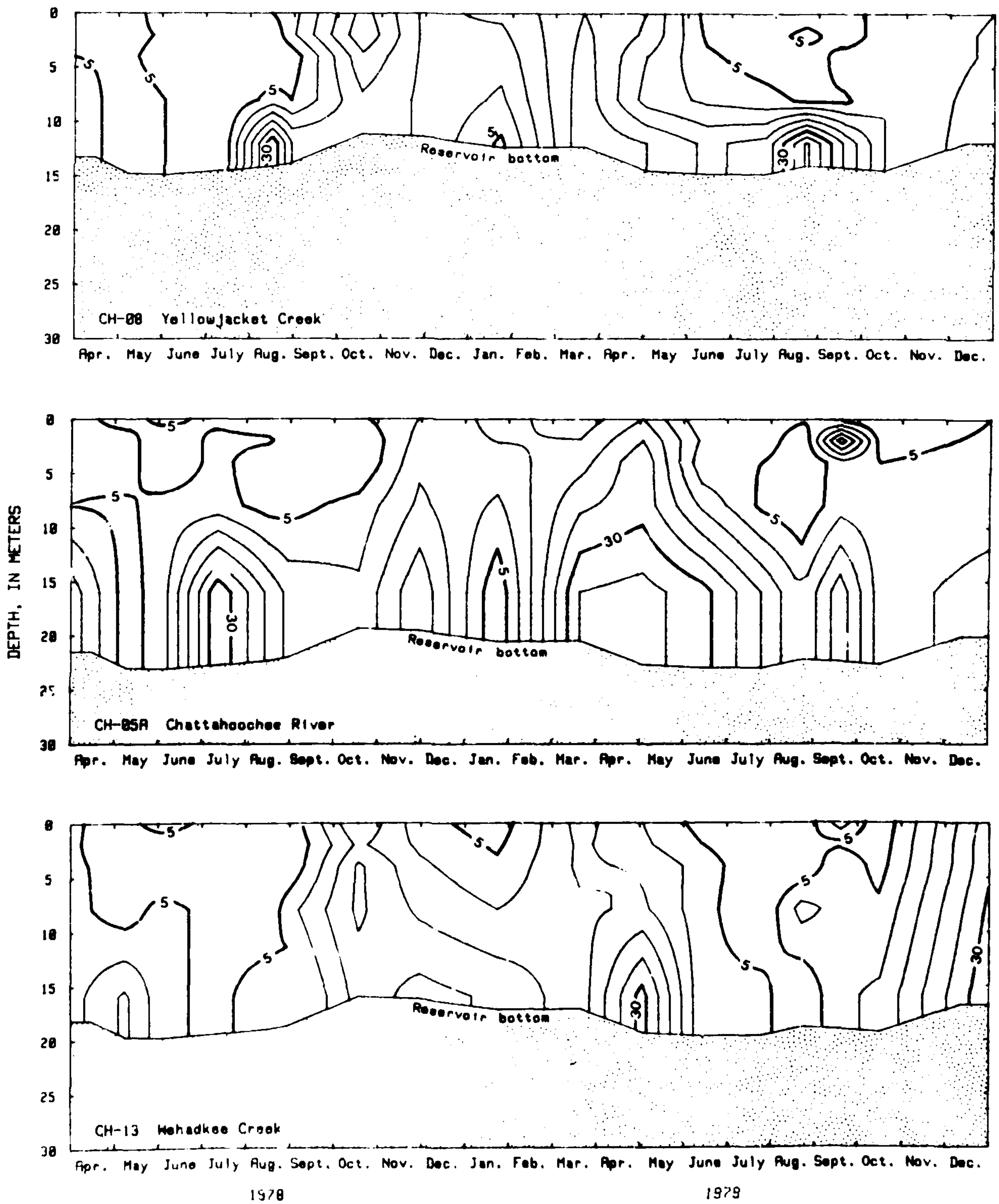
Nonfilterable residue distributions in the main channel at station CH-09A and in Yellowjacket and Wehadkee Creeks are presented in figure 25. The only substantial difference in the distribution was the hypolimnetic accumulation of particulates. The settling was much in evidence in late summer and early fall at both the Yellowjacket Creek and Chattahoochee River stations, but noticeably absent from Wehadkee Creek (fig. 25).



EXPLANATION

—16— LINE OF EQUAL TOTAL NONFILTERABLE RESIDUE CONCENTRATION--Interval 8 milligrams per liter

FIGURE 24.--Comparisons of total nonfilterable residue concentrations in West Point Reservoir for selected data-collection trips.



EXPLANATION

—5— LINE OF EQUAL TOTAL NONFILTERABLE RESIDUE--Interval 5 milligrams per liter

FIGURE 25.--Comparisons of total nonfilterable residue at selected main channel and tributary stations in West Point Reservoir, April 1978 - December 1979.

Iron and Manganese Cycling

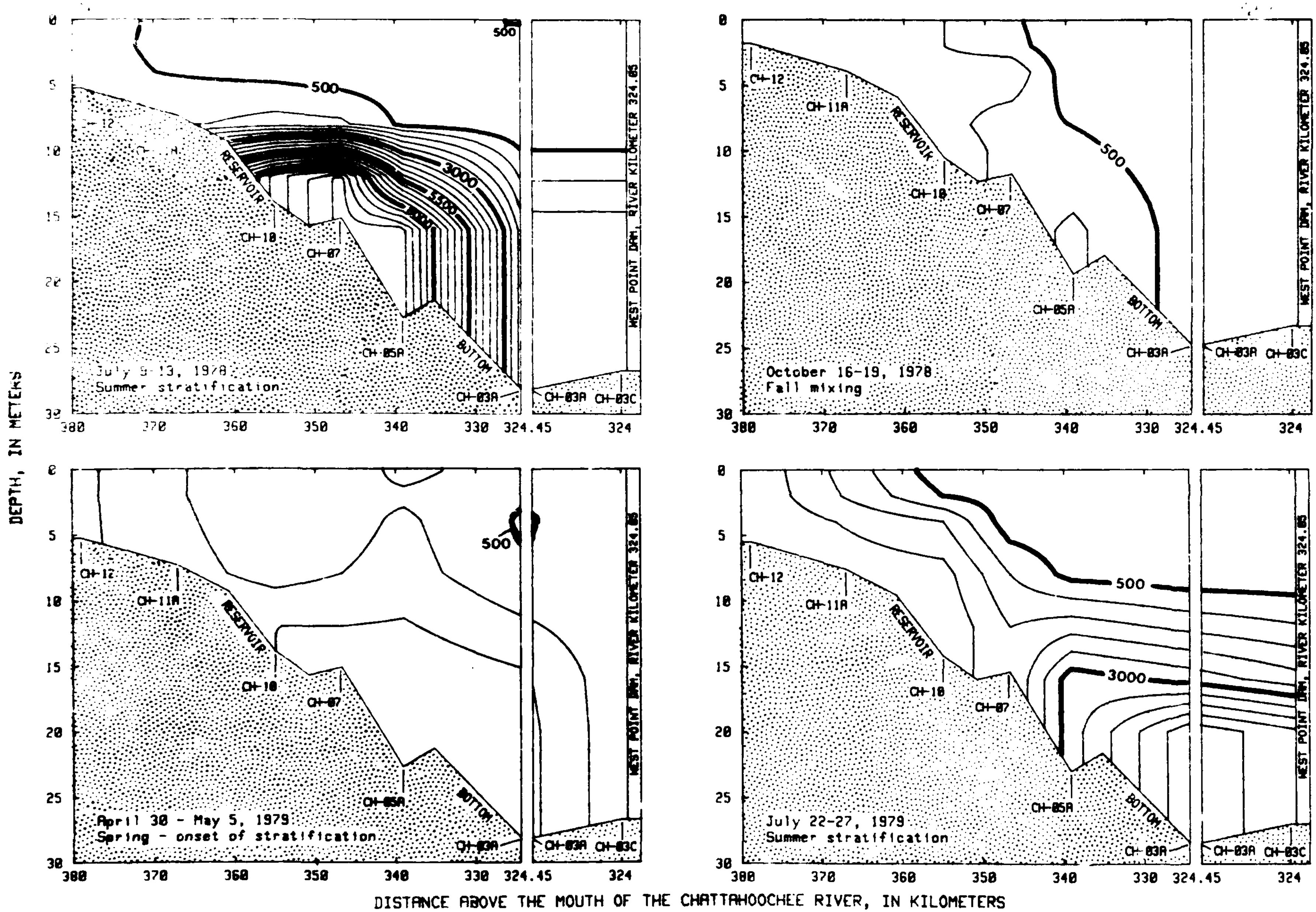
Clays prevalent in the Piedmont province of Georgia contain appreciable quantities of iron and manganese (Cherry, 1961) and are probably the main source of metal loading to West Point Reservoir. During an intensive river-quality assessment of the Upper Chattahoochee River Basin, Faye and others (1978) demonstrated the role of silt-clay particulates as carriers for the suspended phases of a number of metals. The seasonal and longitudinal aspects of the metals cycle in this system are illustrated by the series of depth-reservoir reach isopleths for selected data-collection trips shown in figure 26. These example graphs represent total iron distribution in the main channel during different times of the year and show the effects of up-stream channel erosion, sedimentation, and thermal stratification. Because manganese behaves in a manner similar to iron, these illustrations will be utilized to explain the distribution of both metals.

Thermal stratification and the ensuing hypolimnetic dissolved-oxygen depletion resulted in the high total iron concentrations at station CH-07 in July 1978 (fig. 26). The extent of ferric reduction and subsequent release of soluble ferrous iron from bottom materials was found to vary spatially and temporally with the extent of dissolved-oxygen depletion, as can be seen in figures 19 and 26. Fall mixing and reaeration of the bottom water in the reservoir reduced iron and manganese concentrations in the water column. For example, observed concentrations of total iron also were much lower and more uniform throughout the water column (October 1978 plot in fig. 26).

Most of the total iron in the upper reaches (lotic section) of the reservoir was in the suspended phase, as little ferrous iron was present in the water column (Appendix C-10) in this section. Loading and sedimentation of particulate iron depend on flow conditions in the Chattahoochee River, the reservoir pool elevation, and other factors. At higher flows the river inflow generally carries more suspended material. For example, in July 1978, mean inflow water discharge at Whitesburg, Ga., was 57.2 m^3/s with a reservoir pool elevation of 193.7 m (Appendix A-1) and total iron concentrations at Franklin, Ga., were about 500 mg/L. However, in January 1979, mean inflow discharge was 147 m^3/s with a reservoir elevation of 191.5 m and inflow total iron concentrations were about 5,400 mg/L. The data collected, however, are insufficient to quantify this complex relation.

In contrast to the upper reaches of the main channel, the large increases in total iron in the bottom water of West Point Reservoir during stratified periods were due primarily to the dissolved phase. Extended periods of hypolimnetic anoxia and low oxidation-reduction potentials resulted in higher dissolved-iron concentrations. The depth-reservoir reach isopleths of dissolved-iron concentrations and oxidation-reduction potentials illustrate the association for the main channel (figs. 27 and 28). These figures show that, for downstream reaches of the main channel, high dissolved-iron concentrations coincide with low oxidation-reduction potentials.

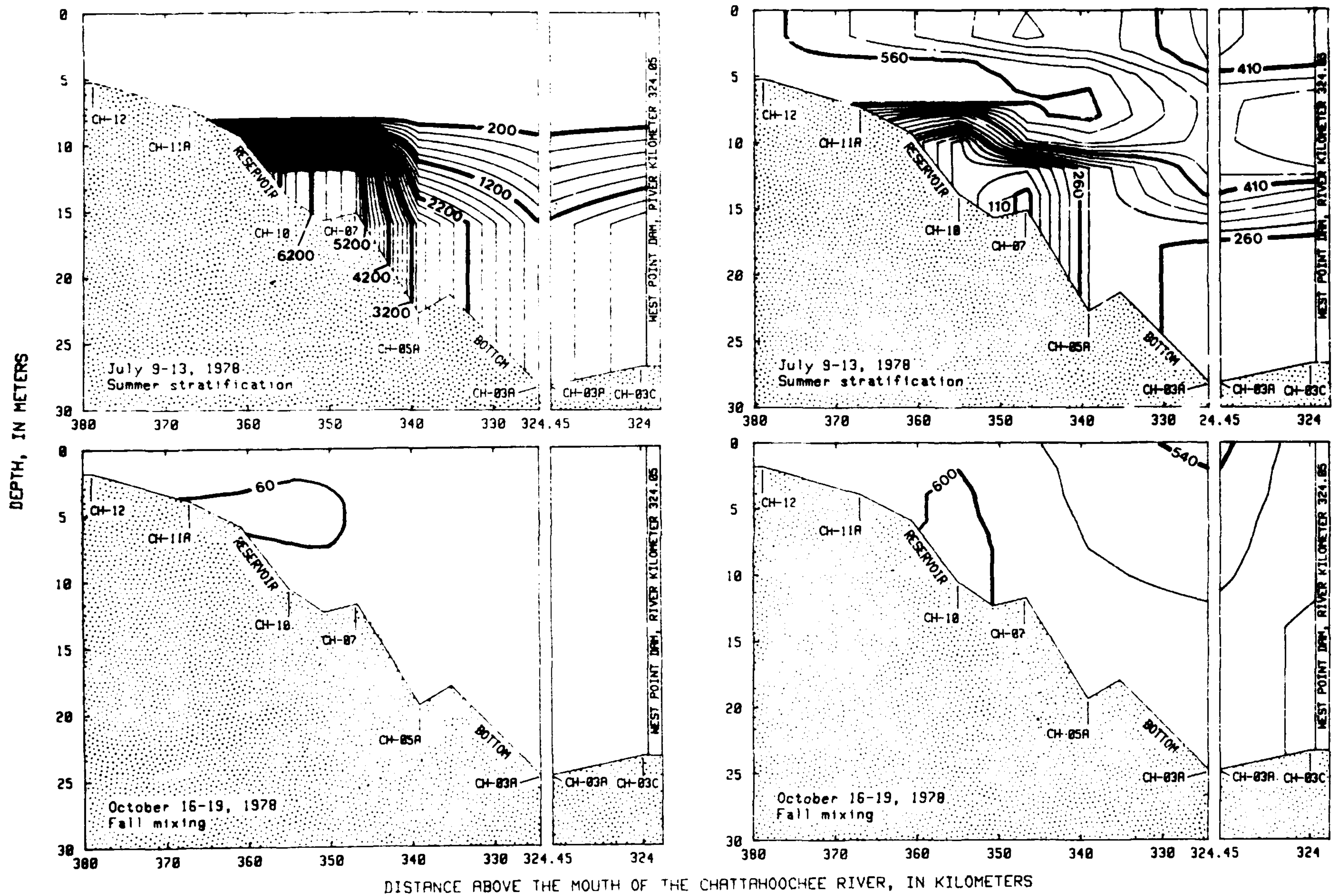
Important differences between the main channel and tributary environments in West Point Reservoir revealed by examination of depth-time isopleths of total iron in Yellowjacket and Wehadkee Creeks (stations CH-08, CH-13) and the Chattahoochee River (station CH-05A) (fig. 29). Yellowjacket Creek tributary showed more persistent dissolved-oxygen depletion than either Wehadkee Creek tributary or the main channel. These conditions resulted in total iron concentrations that were 3 to 3.5 times greater in the



EXPLANATION

—500— LINE OF EQUAL TOTAL IRON CONCENTRATION--Interval 500 micrograms per liter

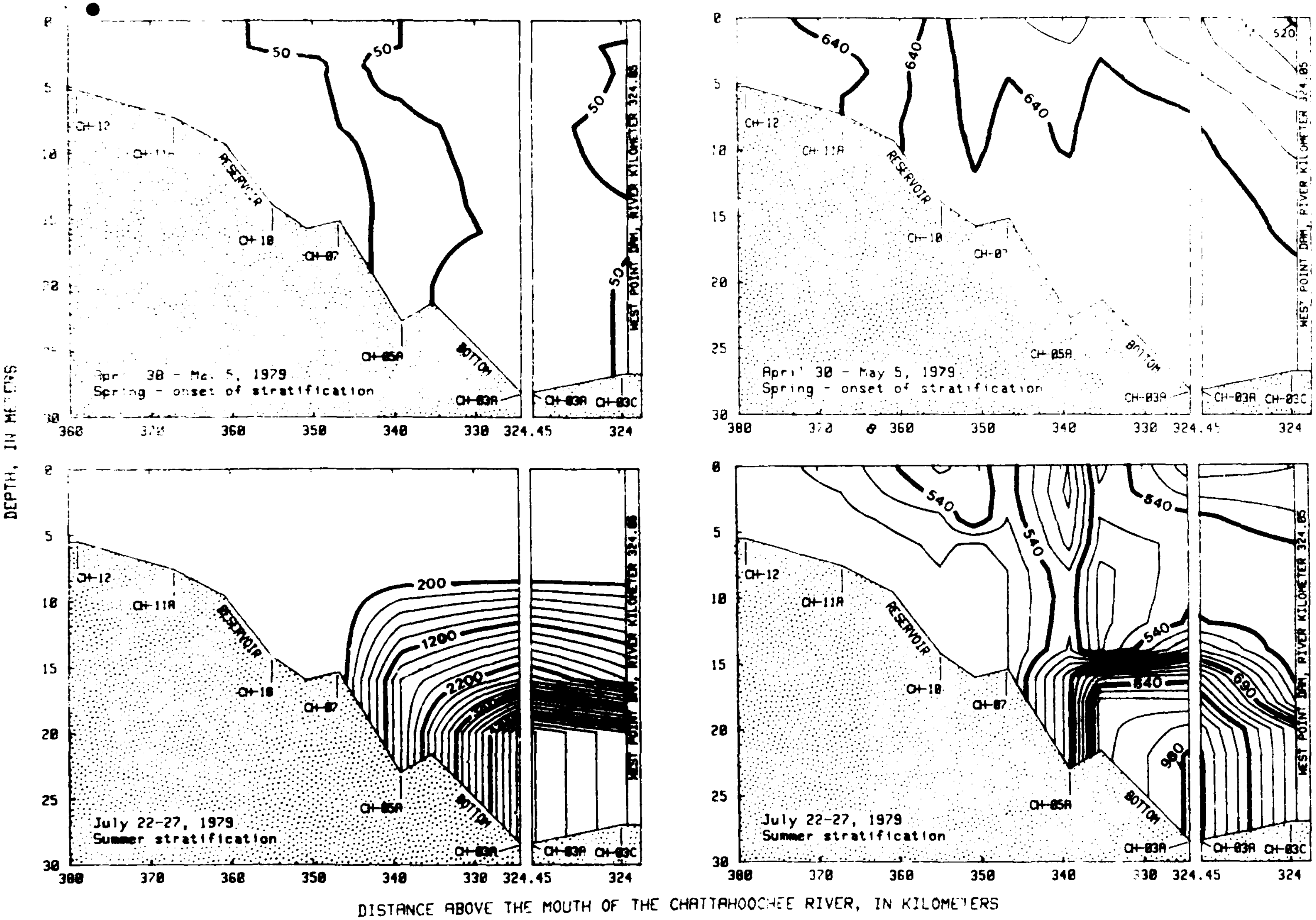
FIGURE 26.--Comparisons of distribution patterns of total iron concentrations in West Point Reservoir for selected data-collection trips.



EXPLANATION

LEFT GRAPHS: —200— LINE OF EQUAL DISSOLVED IRON CONCENTRATION--Interval 200 micrograms per liter
RIGHT GRAPHS: —540— LINE OF EQUAL OXIDATION-REDUCTION POTENTIAL--Interval 30 millivolts

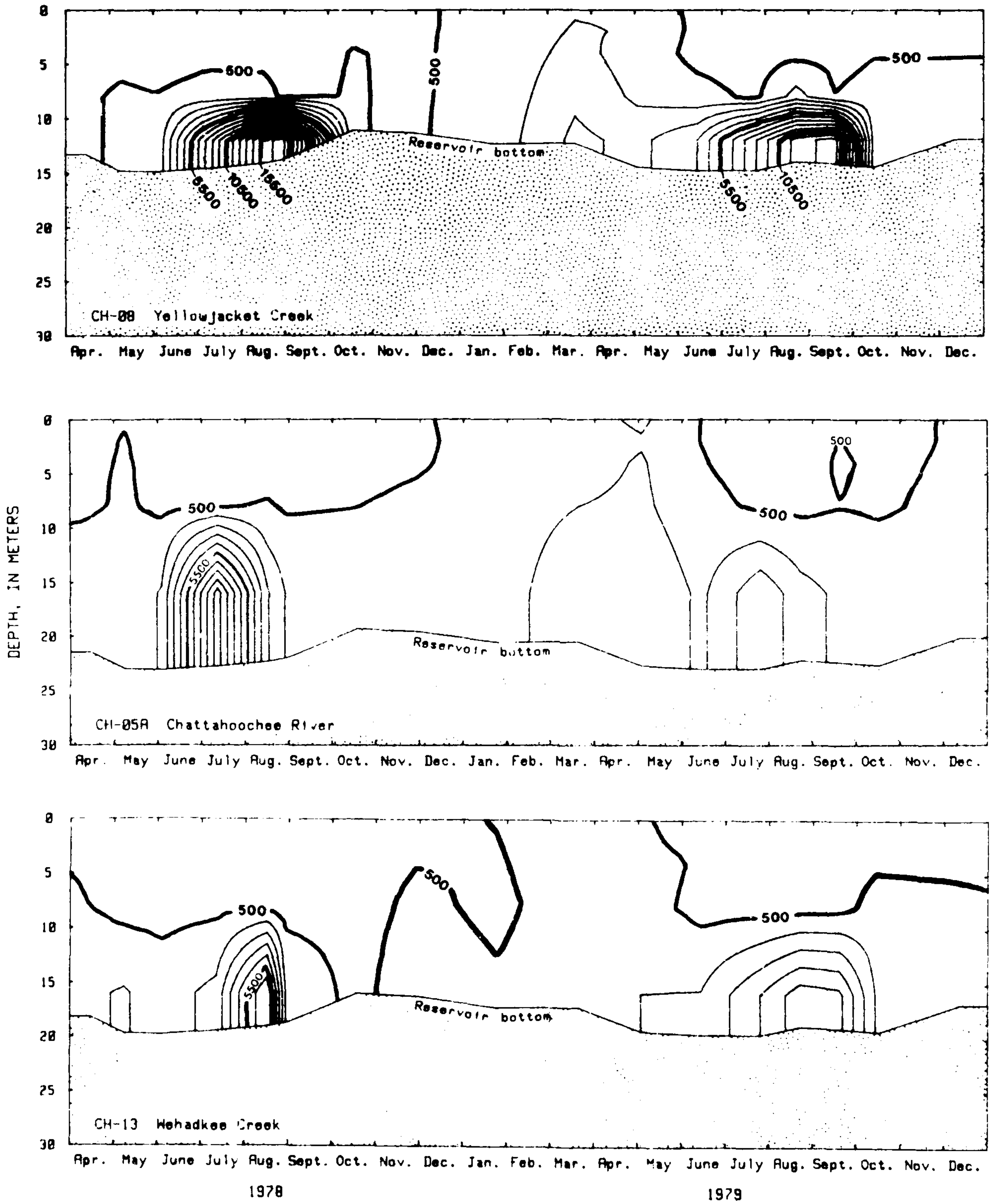
FIGURE 27.--Comparisons of distribution patterns of dissolved iron concentrations and oxidation-reduction potential in West Point Reservoir for selected data-collection trips.



EXPLANATION

LEFT GRAPHS: —200— LINE OF EQUAL DISSOLVED IRON CONCENTRATION--Interval 200 micrograms per liter
RIGHT GRAPHS: —540— LINE OF EQUAL OXIDATION-REDUCTION POTENTIAL--Interval 30 millivolts

FIGURE 28.--Comparisons of distribution patterns of dissolved iron concentrations and oxidation-reduction potential in West Point Reservoir for selected data-collection trips.



EXPLANATION

—500— LINE OF EQUAL TOTAL IRON CONCENTRATION--Interval 1000 micrograms per liter

FIGURE 29.--Comparisons of total iron concentrations at selected main channel and tributary stations in West Point Reservoir, April 1978 - December 1979.

Yellowjacket Creek tributary than samples from Wehadkee Creek tributary, and from 1.5 to 4 times as much total iron concentrations as samples from the main channel (fig. 29).

Increases in the iron and manganese content of release water from West Point Reservoir were primarily attributable to the hypolimnetic solubilization of these metals during summer months when the lower part of the water column was anoxic. The increases during minimum and maximum daily release periods were mostly coincident with increases in the dissolved metals at the dam pool (figs. 30 and 31). During stratified periods in the reservoir, dissolved metal concentrations accounted for most of the total constituent concentrations. During unstratified periods, most of the total constituent concentrations were comprised of suspended constituents. There was, however, no appreciable difference in the total constituent metal concentrations between minimum and maximum daily release periods and no substantial longitudinal change from stations CH-2.5B to CH-01D (fig. 32).

Solubilization of sediment-bound iron and manganese during anoxic conditions in the dam pool of West Point Reservoir resulted in objectionable concentrations of these elements in downstream public water supplies. For a discussion of water-quality violations, refer to the Water-Quality Criteria section of this report.

Nutrient Cycling

Nutrient input to an aquatic system is important in terms of its impact on phytoplankton growth and eutrophication. Excluding Yellowjacket and Wehadkee Creeks, a combination of both point and nonpoint source loading to the Chattahoochee River is the primary nutrient input to West Point Reservoir. Point-source contributions from metropolitan Atlanta dominate during low-flow periods, while nonpoint runoff predominates during high-flow periods and storm events (Stamer and others, 1978). This produces a relation between river discharge and nutrient concentration such that the nutrient load is fairly uniform year-round. Treated sewage and urban runoff are the primary input to Yellowjacket Creek and agricultural runoff is the primary input to Wehadkee Creek.

Inflow water discharge, thermal stratification, biologic activity, and interflow affected the distribution of nutrients in West Point Reservoir. The influence of these factors in the main channel of the reservoir will be discussed, utilizing the isopleths in figures 33 through 40 as representative examples.

As shown in the July 1978 graphs in figure 33, inflow concentrations of total phosphorus and dissolved orthophosphate were high (0.42 and 0.28 mg/L, respectively) during the stratified periods. An appreciable amount of this incoming load, however, was removed from the epilimnion by the time water reached the middle of the reservoir. Between stations CH-11A and CH-10, the reservoir quickly deepens, flow velocities decrease, and vertical mixing decreases, thereby facilitating deposition (fig. 33). Removal of phosphorus from the upper water column was probably a result of settling of particulate phosphorus associated with inorganic suspended sediment and plankton, and a result of phytoplankton uptake which depleted the dissolved fraction. Hypolimnetic concentrations of suspended and dissolved phosphorus, as shown in the July 1978 isopleths in figure 33, were relatively high as far downstream

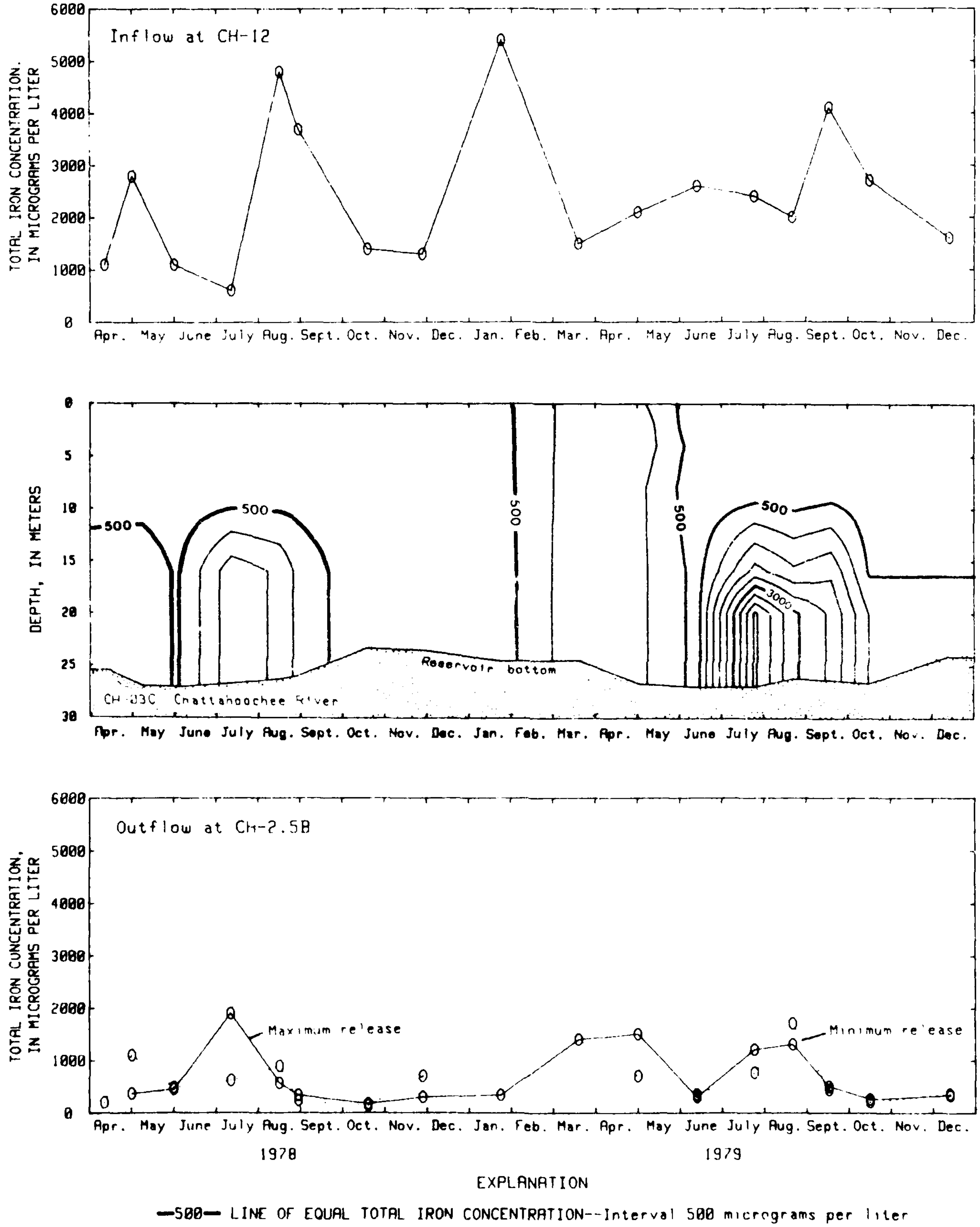
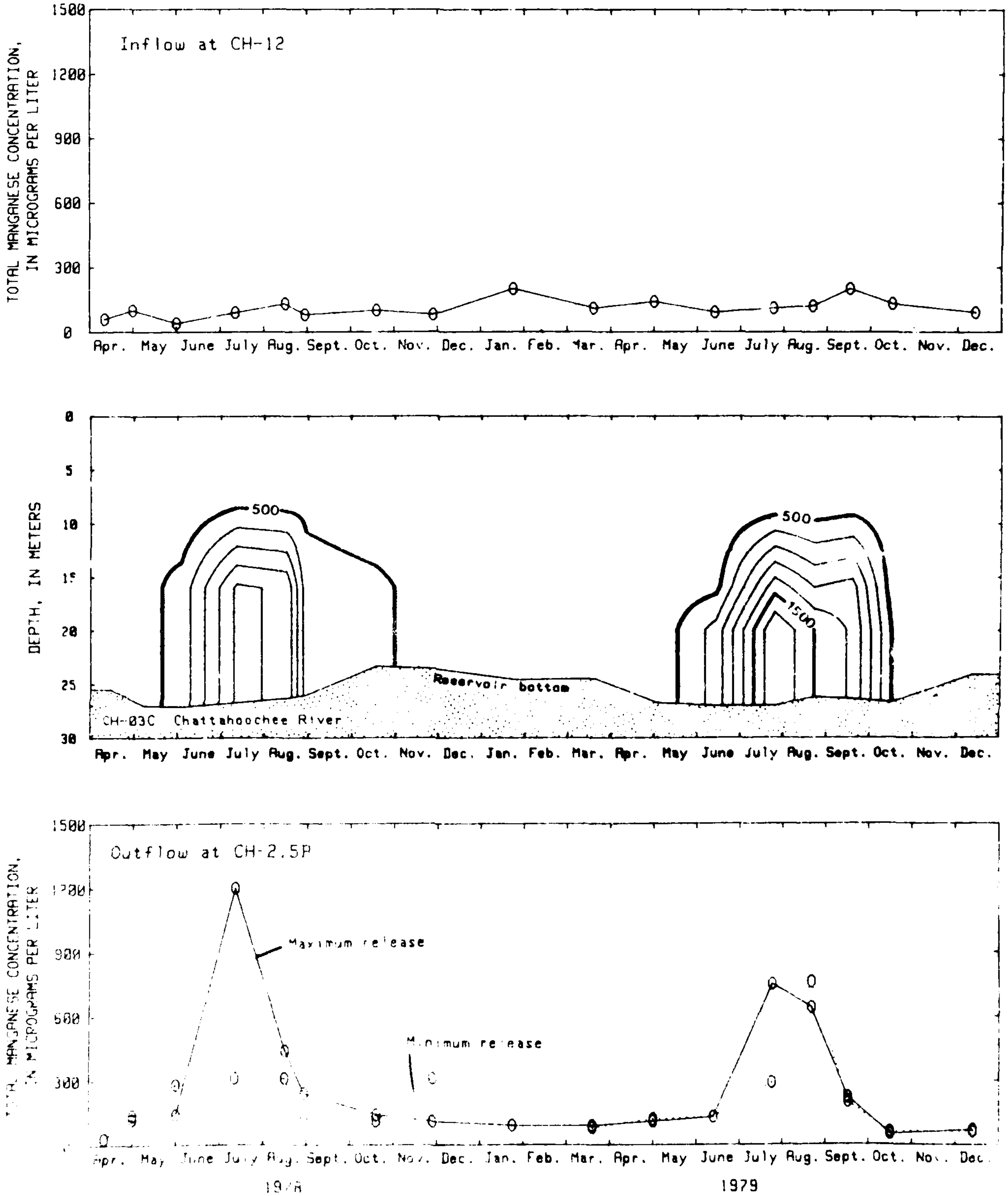


FIGURE 30.--Comparisons of total iron concentrations in inflow to West Point Reservoir with seasonal distribution patterns of total iron concentrations at the dam pool and with total iron concentrations in minimum and maximum release from the reservoir, April 1978 - December 1979.



EXPLANATION

—500— LINE OF EQUAL TOTAL MANGANESE CONCENTRATION--Interval 250 micrograms per liter

FIGURE 31.--Comparisons of total manganese concentrations in inflow to West Point Reservoir with seasonal distribution patterns of total manganese concentrations in the dam pool and with total manganese concentrations in minimum and maximum outflow from the reservoir, April 1978 - December 1979.

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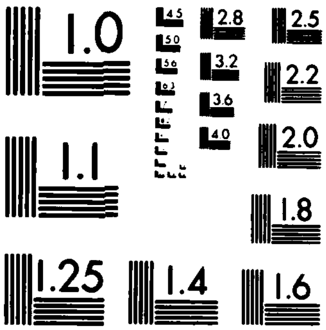


MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

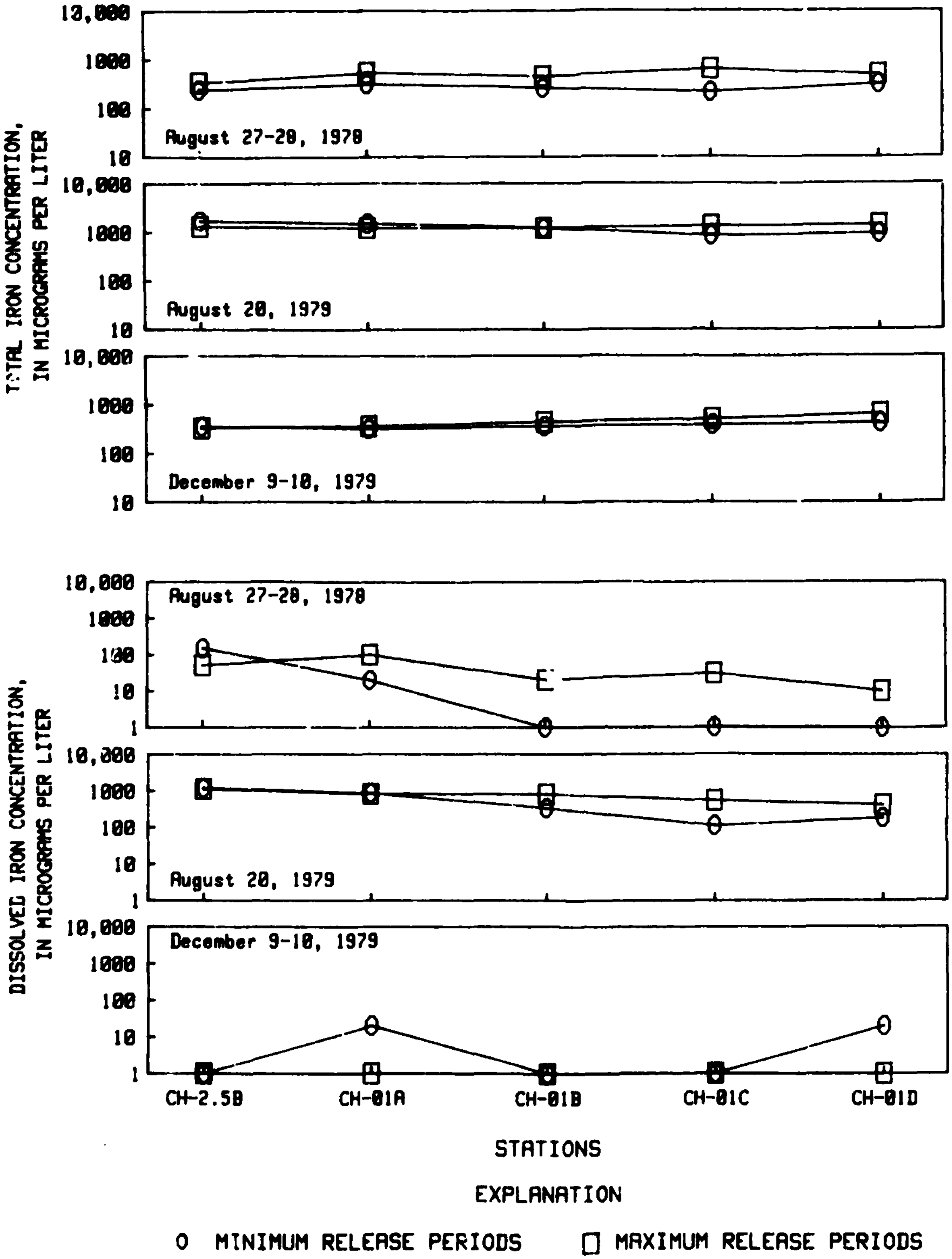
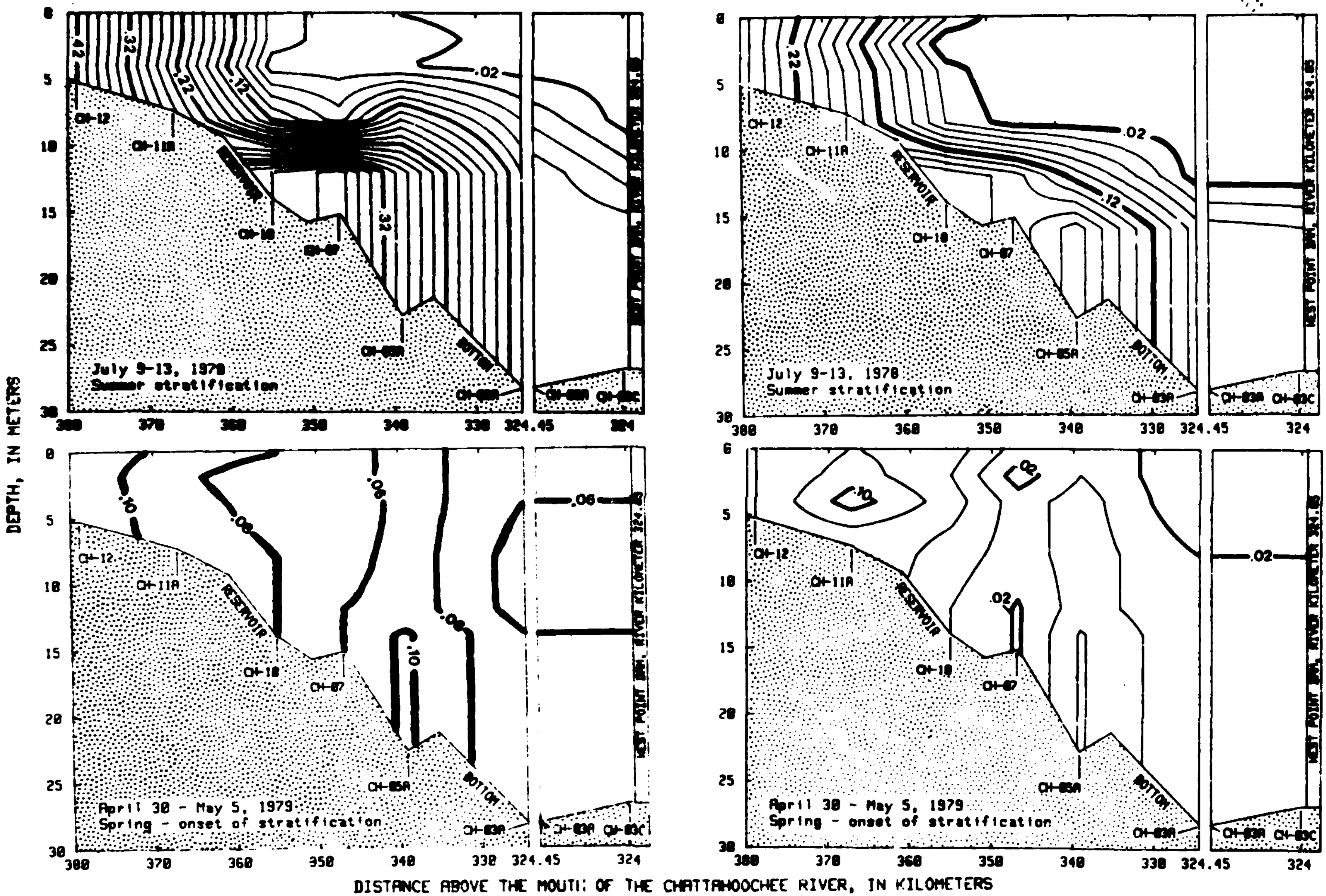


FIGURE 32.--Longitudinal distribution of total and dissolved iron concentrations in the Chattahoochee River below West Point Dam for selected data-collection trips.



EXPLANATION

LEFT GRAPHS: —.02— LINE OF EQUAL TOTAL PHOSPHORUS CONCENTRATION--Interval 0.02 milligram per liter

RIGHT GRAPHS: —.02— LINE OF EQUAL DISSOLVED ORTHOPHOSPHATE CONCENTRATION--Interval 0.02 milligram per liter

FIGURE 33.--Comparisons of distribution patterns of total phosphorus and dissolved orthophosphate concentrations in West Point Reservoir for selected data-collection trips.

as station CH-05A. The suspended fraction was most likely derived from sestonic settling and from material carried by interflow, whereas the dissolved fraction was probably the result of sestonic decomposition and the release of phosphorus from the sediments. The mobilization of sediment-bound phosphorus is most prevalent during severe stratification when hypolimnial waters are anoxic and have a low oxidation-reduction potential. Once the water column mixes in the fall, reaeration and higher oxidation-reduction potentials could allow much of the hypolimnial dissolved phosphorus to be removed from the water column by coprecipitation with ferric ion (Hutchinson, 1975).

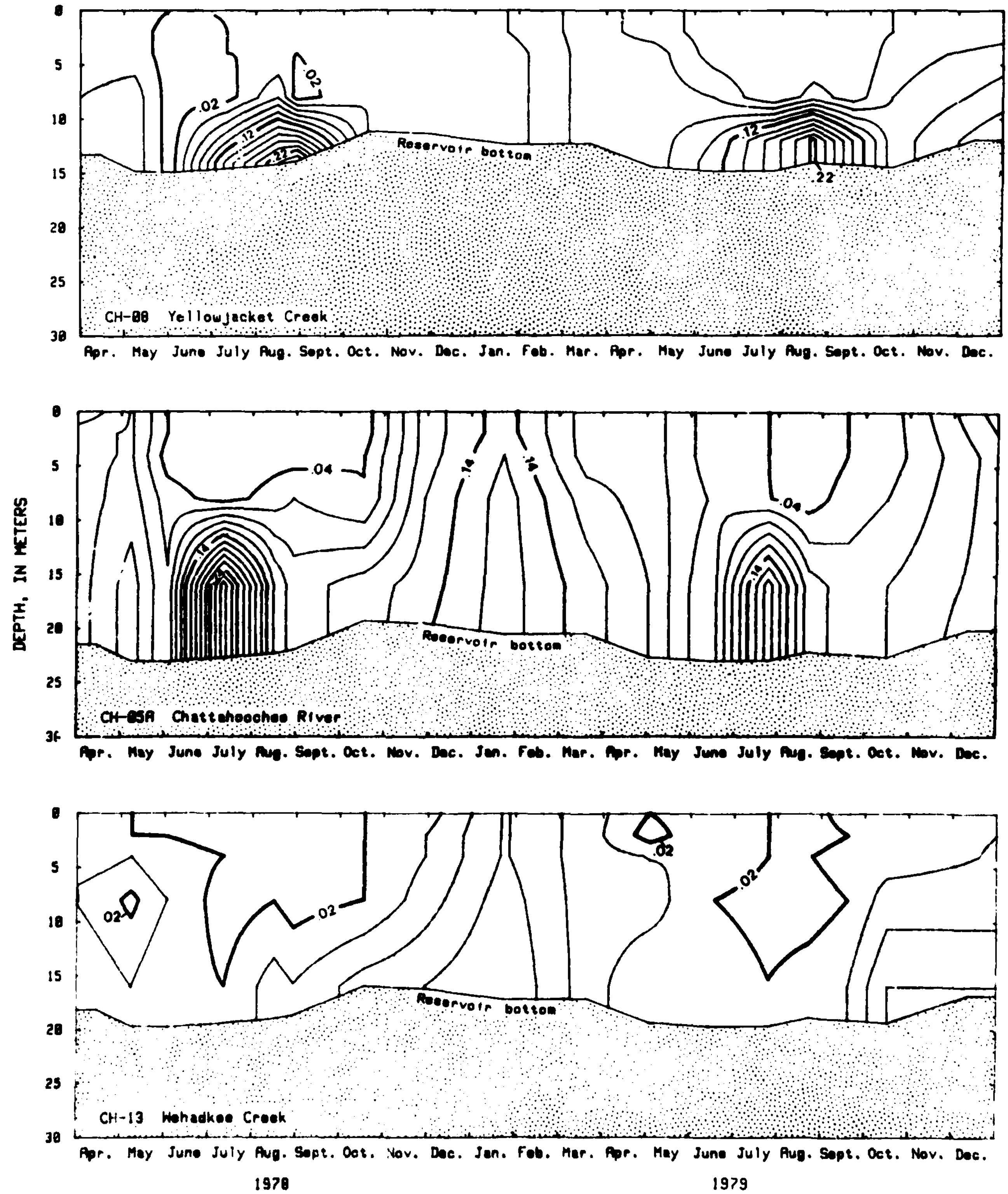
The vertical concentration gradients of total phosphorus and dissolved orthophosphate concentrations during the unstratified periods were negligible and horizontal downstream gradients were much more shallow than during thermal stratification (April-May graph, fig. 33).

Phosphorus data collected at the tributary stations in the reservoir during 1978 and 1979 indicate that Yellowjacket Creek (CH-08) had much greater concentrations of phosphorus than Wehadkee Creek (CH-13). Appreciable hypolimnial concentrations of total phosphorus and dissolved orthophosphate at station CH-08 were observed during the summer months (figs. 34 and 35). The particulate fraction probably represents a combination of sestonic settling and particulates from point and nonpoint sources from the city of LaGrange, Ga. By comparison, the Wehadkee Creek station (CH-13) did not show appreciable concentrations of phosphorus even though anoxic conditions were present in the hypolimnion (figs. 34 and 35).

Phosphorus concentrations in the downstream reaches of the Chattahoochee River were affected by the seasonal chemical stratification and biological activity occurring in the reservoir. Figure 36 shows the total phosphorus concentrations measured at stations CH-12 and CH-2.5B during minimum and maximum daily release periods and the seasonal distribution of total phosphorus at station CH-03C. Figure 37 makes the same comparisons for dissolved orthophosphate. The graphs in figures 36 and 37 show that outflow concentrations of phosphorus from the reservoir generally were low in relation to inflow concentrations.

Nitrite plus nitrate nitrogen and ammonia nitrogen concentrations during the nonstratified periods are illustrated by the April 30-May 5, 1979, isopleth in figure 38. For most of the reservoir reach the water column was well mixed, as indicated by the nearly vertical isopleths of nitrite plus nitrate. The concentrations did show a steady decrease in the downstream direction. Very little ammonia nitrogen was present in the water column at this time, as would be expected in a strongly oxidizing environment.

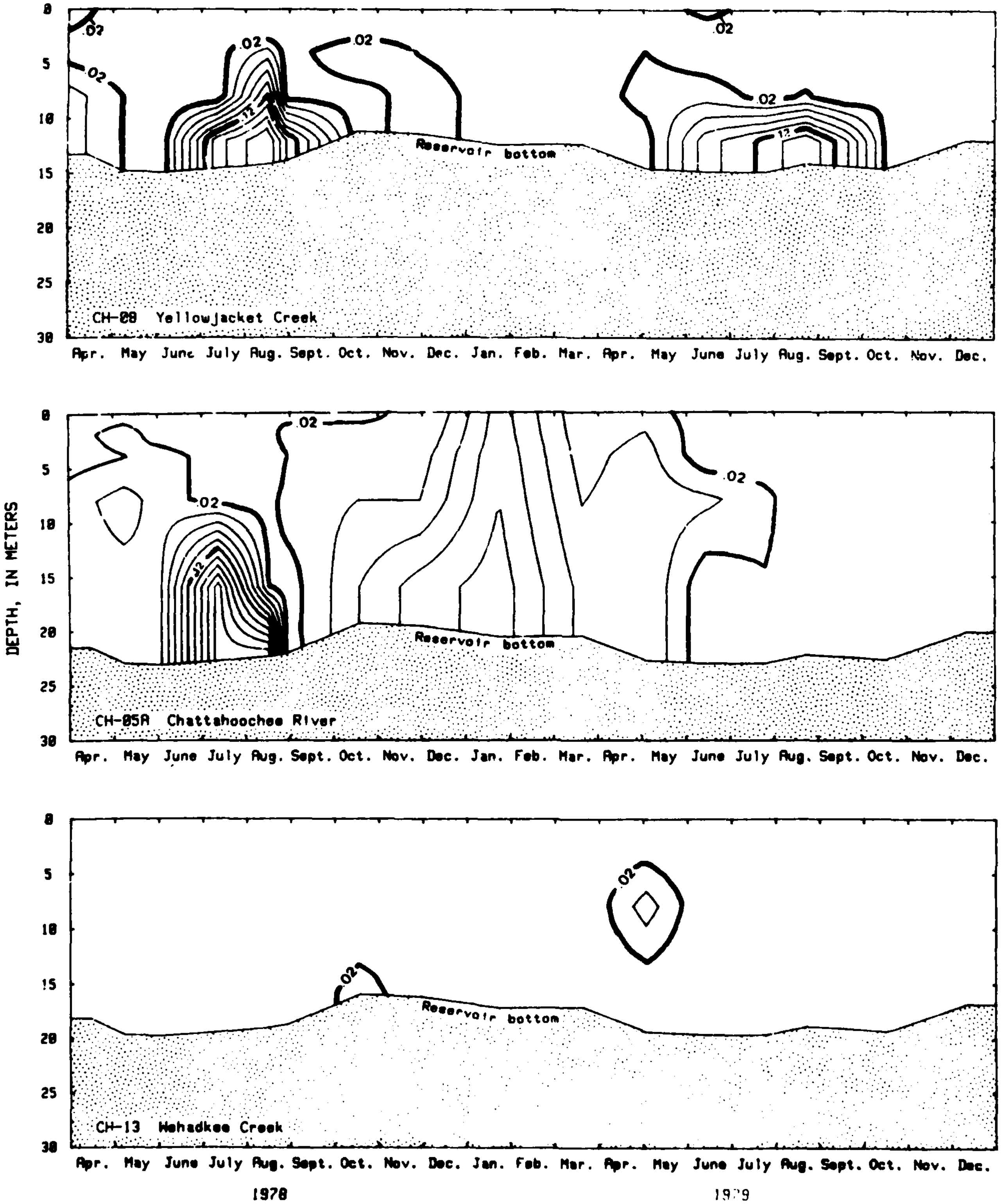
Concentrations of nitrite plus nitrate and ammonia nitrogen were quite different during the stratified periods as the graphs for July 23-27, 1979, in figure 38 indicate. Concentrations of nitrite plus nitrate in the epilimnion and hypolimnion in the lentic section were lower than the concentrations of the input water at CH-12. The lower concentrations in the lentic section of the epilimnion were probably due to nitrogen uptake by phytoplankton, followed by plankton settling. The lower concentrations of nitrite plus nitrate in the lentic section of the hypolimnion were probably due to the reduction of sestonic organic nitrogen to ammonia. Relatively high concentrations of nitrite plus nitrate, however, persisted in the metalimnion as far downstream as the dam pool (station CH-03A) as a result



EXPLANATION

—.02— LINE OF EQUAL TOTAL PHOSPHORUS CONCENTRATION--Interval 0.02 milligram per liter

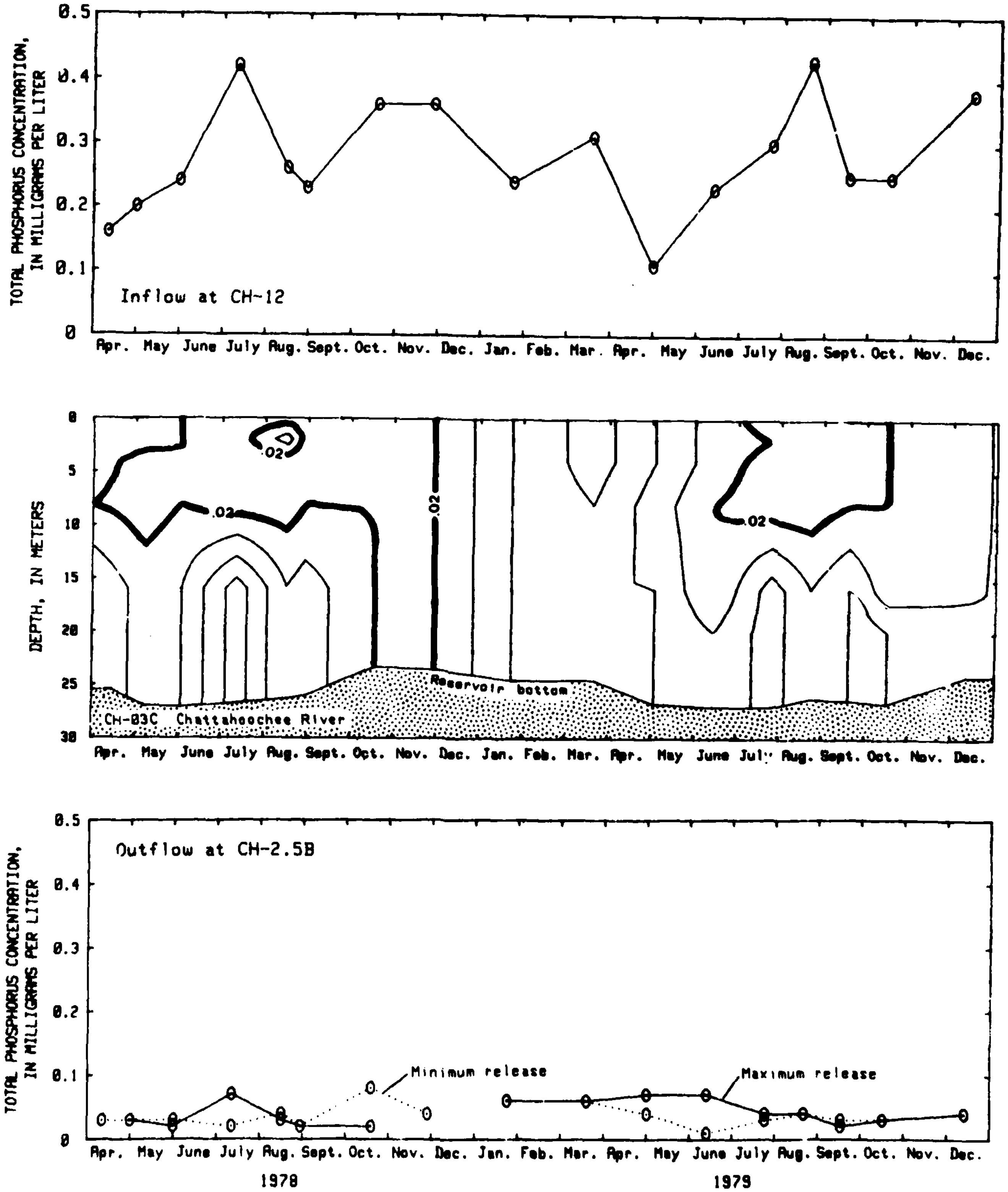
FIGURE 34.--Comparisons of total phosphorus concentrations at selected main channel-tributary stations in West Point Reservoir, April 1978 - December 1979.



EXPLANATION

—.01— LINE OF EQUAL DISSOLVED ORTHOPHOSPHATE CONCENTRATION--Interval 0.02 milligram per liter

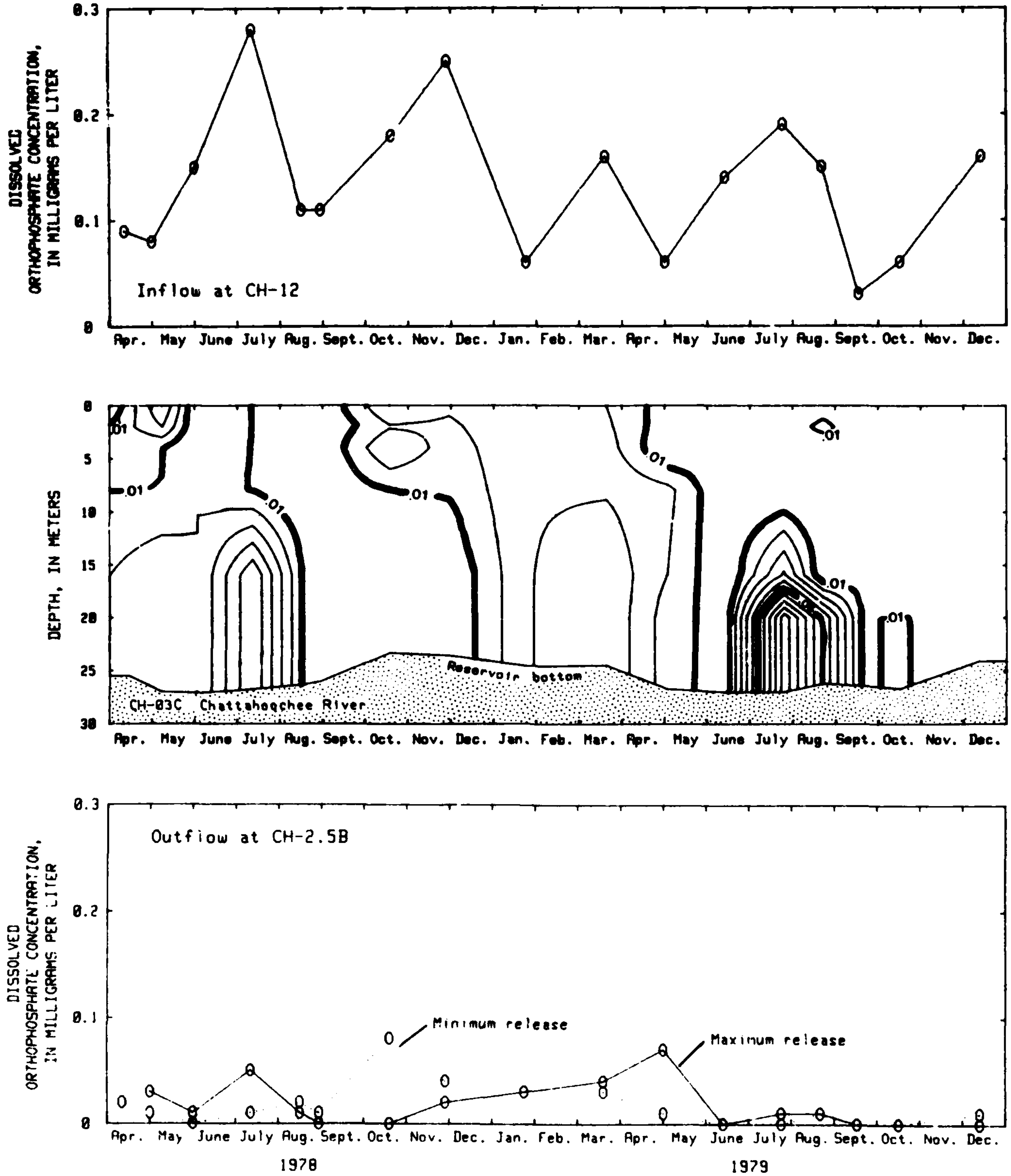
FIGURE 35.--Comparisons of dissolved orthophosphate concentrations at selected main channel-tributary stations in West Point Reservoir, April 1978 - December 1979.



EXPLANATION

—.02— LINE OF EQUAL TOTAL PHOSPHORUS CONCENTRATION--Interval 0.02 milligram per liter

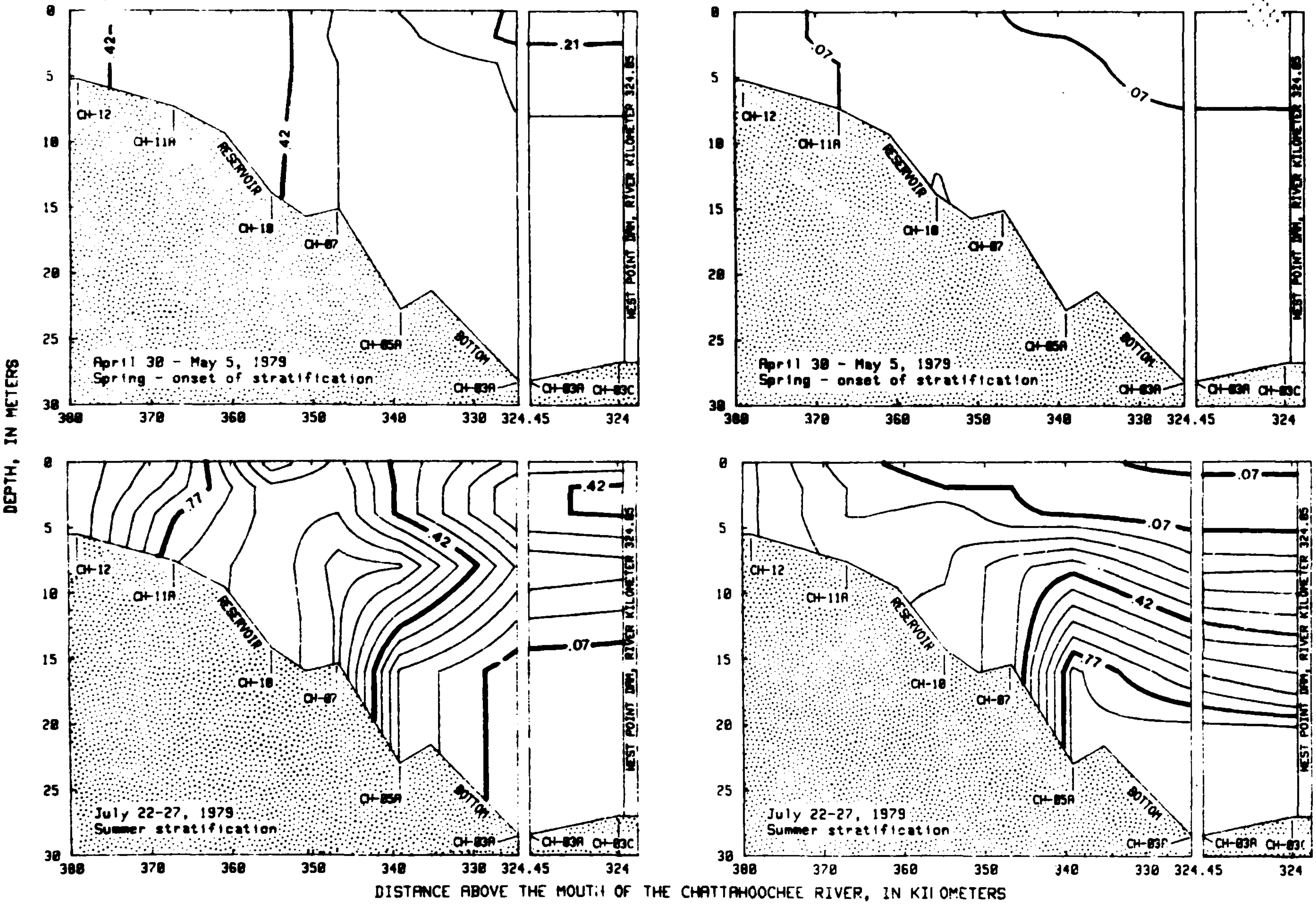
FIGURE 36.--Comparisons of total phosphorus concentrations in inflow to West Point Reservoir with seasonal distribution patterns of total phosphorus concentrations at the dam pool and with total phosphorus concentrations in minimum and maximum release from the reservoir, April 1978 - December 1979.



EXPLANATION

—.01— LINE OF EQUAL DISSOLVED ORTHOPHOSPHATE CONCENTRATION--Interval 0.02 milligram per liter

FIGURE 37.--Comparisons of dissolved orthophosphate concentrations in inflow to West Point Reservoir with seasonal distribution patterns of dissolved orthophosphate concentrations at the dam pool and with dissolved orthophosphate concentrations in minimum and maximum release from the reservoir, April 1978 - December 1979.



EXPLANATION

LEFT GRAPHS: —.42— LINE OF EQUAL TOTAL NITRITE PLUS NITRATE CONCENTRATION--Interval 0.07 milligram per liter

RIGHT GRAPHS: —.07— LINE OF EQUAL TOTAL AMMONIA CONCENTRATION--Interval 0.07 milligram per liter

FIGURE 38.--Comparisons of distribution patterns of total nitrite plus nitrate and total ammonia concentrations in West Point Reservoir for selected data-collection trips.

of interflow. The maximum concentration of total ammonia nitrogen (0.84 mg/L) occurred in the vicinity of river kilometer 340, where dissolved-oxygen depletion was severe and oxidation-reduction potential was low. Some of this ammonia probably originated in the underlying sediment layers and from settling particulate detrital material.

The effects of West Point Reservoir release water on nitrite plus nitrate and ammonia nitrogen concentrations at station CH-2.5B are shown in figures 39 and 40. Concentrations of nitrite plus nitrate nitrogen were much higher than ammonia nitrogen at the dam pool and in the river at station CH-2.5B during the winter, when reservoir waters were well oxygenated. However, concentrations of ammonia nitrogen were much higher than nitrite plus nitrate nitrogen at these two sites during summer stratification periods. Denitrification of nitrite and nitrate nitrogen to ammonia nitrogen in the anoxic hypolimnetic waters resulted in relatively high concentrations of ammonia nitrogen at the dam-pool site and at the downstream site.

High ammonia concentrations in the Chattahoochee River measured at station CH-2.5B coincided with the occurrence of anoxic conditions and high ammonia concentrations at the dam pool (station CH-03C) (fig. 39). There were no appreciable differences between ammonia concentrations during minimum and maximum daily release periods except during periods of high ammonia concentrations at the dam pool.

Seasonal variations in nitrite plus nitrate nitrogen at river station CH-2.5E and the seasonal distribution of these ions at the dam pool (station CH-03C) is presented in figure 40. Nitrite plus nitrate concentrations at station CH-2.5B were nearly identical to those in the bottom water at the dam pool. Low concentrations coincided with the occurrence of anoxic conditions at the dam pool, which is indicative of denitrification.

Biologic Characteristics and Responses to Nutrient Enrichment

Plankton is the aggregate of heterotrophic and autotrophic organisms whose movements in water are more or less dependent on currents. Plankton communities are not only a function of water quality; they can have a direct influence on the physical and chemical properties of concern in water-quality studies. Plankton consists of plants (phytoplankton), animals (zooplankton), and bacteria. Among these component groups, complex interrelations exist.

Chlorophyll-bearing plankton such as algae generally constitute the greatest portion of the plankton biomass. The quantity of phytoplankton occurring at a particular station depends on many factors, including sampling depth, time of day, season of the year, nutrient content of the water, quantity of herbivorous zooplankton, and the presence of toxic materials.

Care must be taken in the interpretation of temporal variations of the plankton data from this study, because the lack of data throughout the annual cycle makes it difficult to infer conclusions concerning periodicity and seasonal patterns in phytoplankton community structure. Some possible explanations, however, can be given as to the longitudinal distribution of autotrophic production. In the lotic environment, production was probably limited by one or a combination of the following:

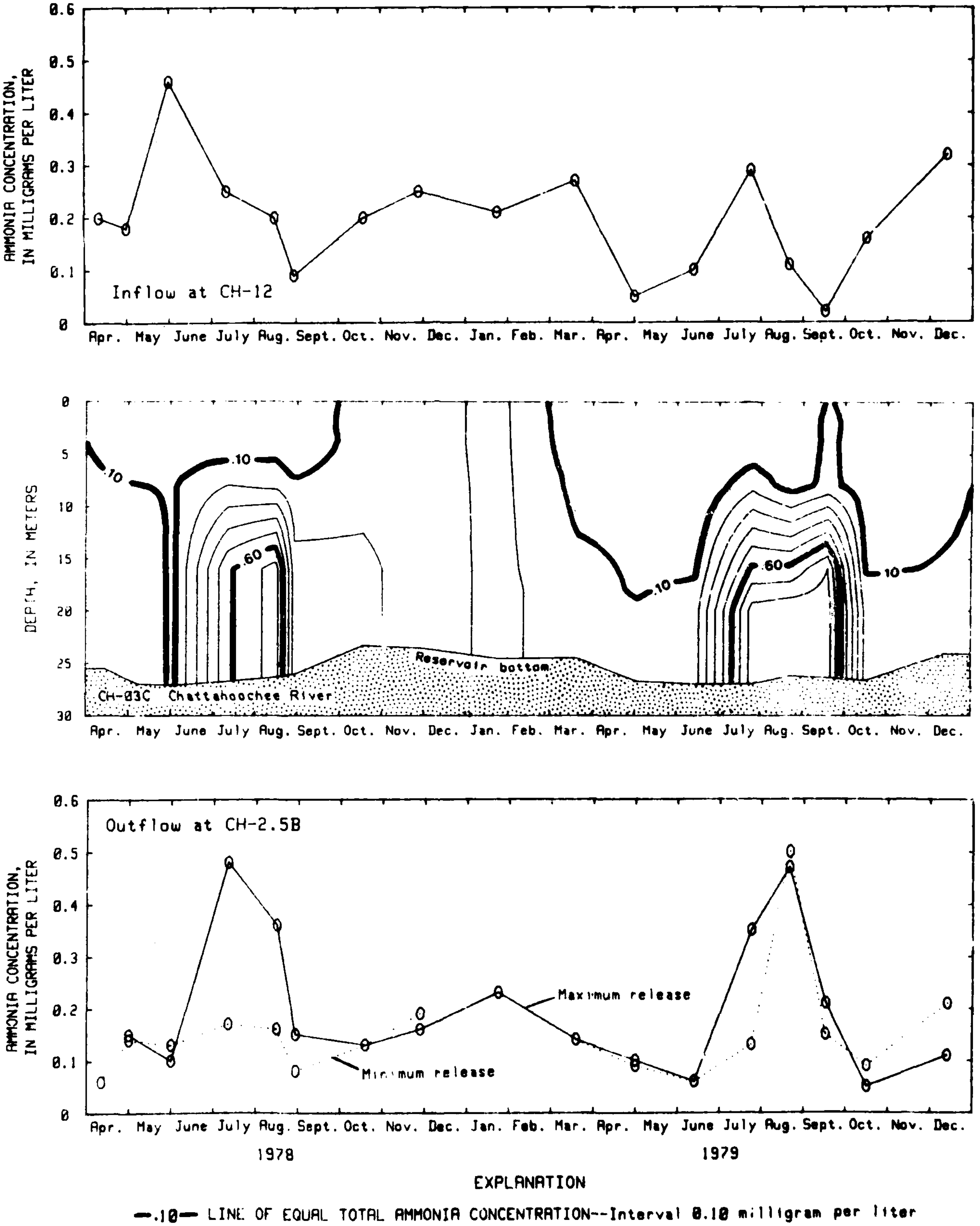
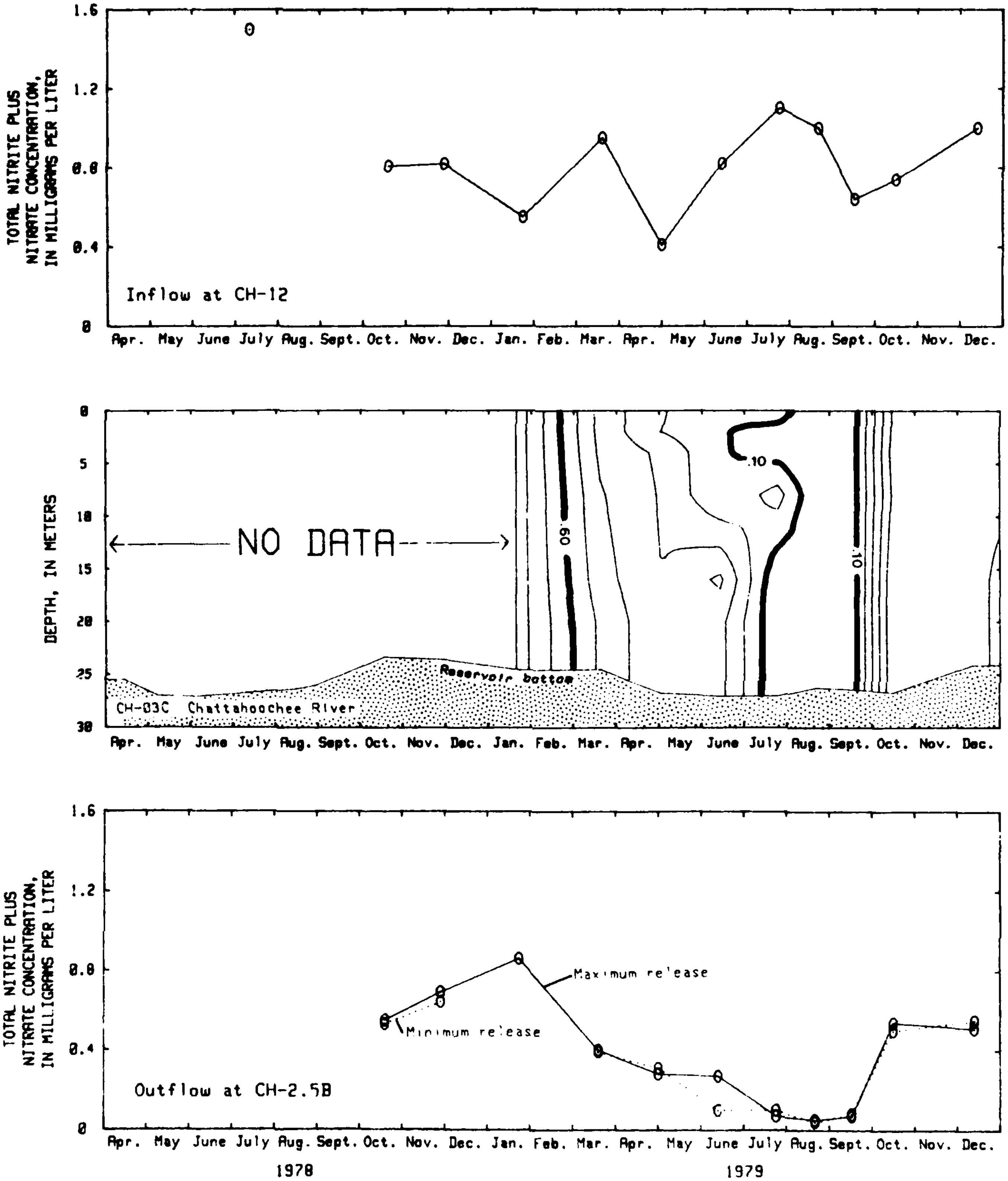


FIGURE 39.--Comparisons of total ammonia concentrations in inflow to West Point Reservoir with seasonal distribution patterns of total ammonia concentrations at the the dam pool and with ammonia concentrations in minimum and maximum release from the reservoir, April 1978 - December 1979.



EXPLANATION

.10 LINE OF EQUAL TOTAL NITRITE PLUS NITRATE CONCENTRATION--Interval 0.10 milligram per liter

FIGURE 40.--Comparisons of total nitrite plus nitrate concentrations in inflow to West Point Reservoir with seasonal distribution patterns of total nitrite plus nitrate concentrations in the dam pool and with total nitrite plus nitrate concentrations in mimimum and maximum release from the reservoir, October 1978 - December 1979.

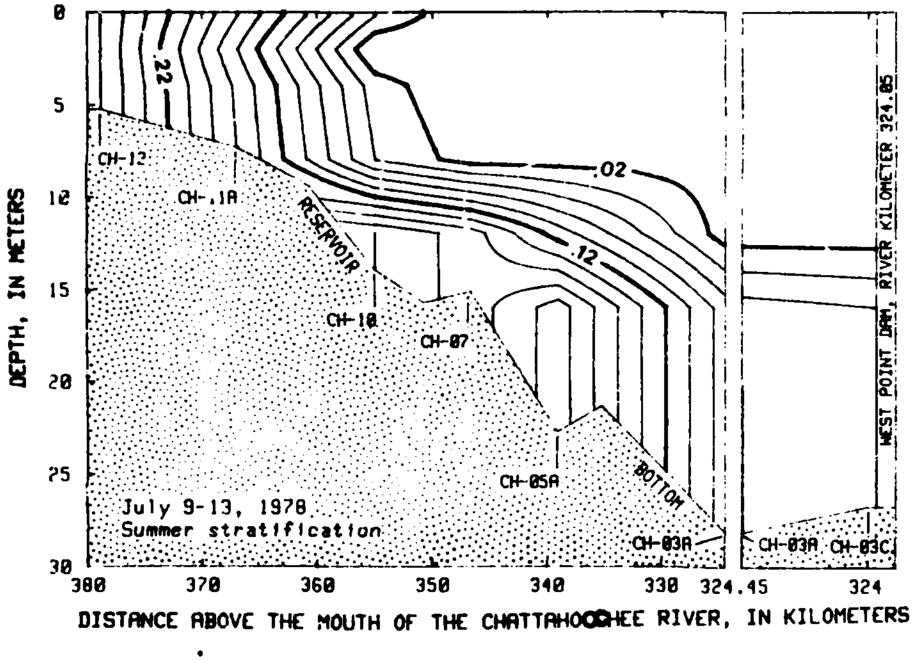
(1) Water velocities were too great for phytoplankton community development.
(2) Large concentrations of nonfilterable-residue loading reduced the depth of the euphotic zone.
(3) Growth was limited by nutrient deficiencies.

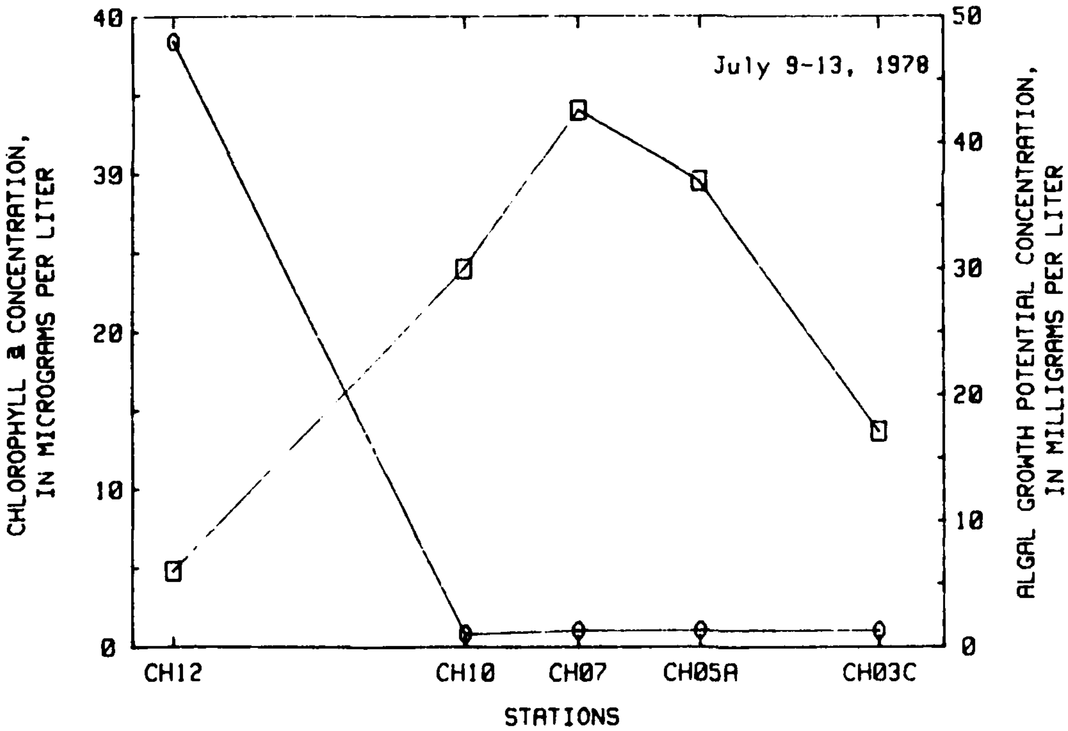
The upper lentic section (middle section of the reservoir) had the highest autotrophic production (figs. 5, 9, and 10). This was in response to nutrient availability, a corresponding reduction in water velocity, and an increase in the euphotic zone depth as the reservoir became more lentic in nature. The uptake, utilization, and subsequent depletion of dissolved orthophosphate and zooplankton grazing appeared to be the principal factors in the decline in autotrophic production in the dam pool area during summer stratified periods (fig. 41). In West Point Reservoir during stratified periods, zooplankton pulses generally coincided or immediately followed phytoplankton pulses. Figure 42 shows the longitudinal distribution of phytoplankton and zooplankton populations for selected sampling dates. No single factor (physical, chemical, or biological), however, can be designated as the cause of the seasonal and longitudinal succession of the phytoplankton, because the algae developed in the collective presence of multiple factors.

Plankton sampling during the study period was insufficient for a thorough understanding of community structure and dynamics of phytoplankton and zooplankton populations in West Point Reservoir. Because many factors influence the nature and distribution of plankton in reservoirs, intensive sampling is necessary. It is important to realize that fluctuations in plankton concentrations are sudden, of short duration, and can be easily missed. Unless one can sample at least twice monthly throughout the annual cycle, it is unlikely that plankton community dynamics can be adequately studied for meaningful management strategies. Even shorter sampling intervals may be necessary during bloom conditions. Also, absolute values of today's standing stock may have little to do with the environmental variables at a sampling station. Standing stock is, in fact, yesterday's standing stock multiplied by the growth rate allowed by yesterday's environment less a loss term.

Algal assay has become a valuable test for evaluating water quality, especially in relation to eutrophication (U.S. Environmental Protection Agency, 1971). AGP (algal growth potential) is defined as the maximum algal mass (dry weight) that can be produced in a natural water sample under standardized laboratory conditions (Shoaf and Lium, 1979). AGP is the algal mass present at the stationary phase of the growth curve and is expressed in milligrams dry weight per liter of algae produced (Shoaf and Lium, 1979).

The AGP assay is based on the principal that growth is limited by the nutrient that is present in shortest supply with respect to the needs of the test organism. The significance of measuring AGP is that differentiation can be made between the growth substances of a sample determined by chemical analysis and the growth substances that are actually available for algal growth. By the algal response to the addition of nutrients, alone or in combinations, one can also determine the nutrient or nutrients limiting algal growth and the potential changes in algal growth with changes in nutrient concentrations.





EXPLANATION

TOP GRAPH: —.02— LINE OF EQUAL DISSOLVED OTHOPHOSPHATE CONCENTRATION--
Interval 0.02 milligram per liter

BOTTOM GRAPH: □ CHLOROPHYLL a O ALGAL GROWTH POTENTIAL

FIGURE 41.--Comparisons of distribution patterns of dissolved orthophosphate concentrations with chlorophyll a concentrations and algal growth potential concentrations in the euphotic zone of West Point Reservoir, July 9-13, 1978.

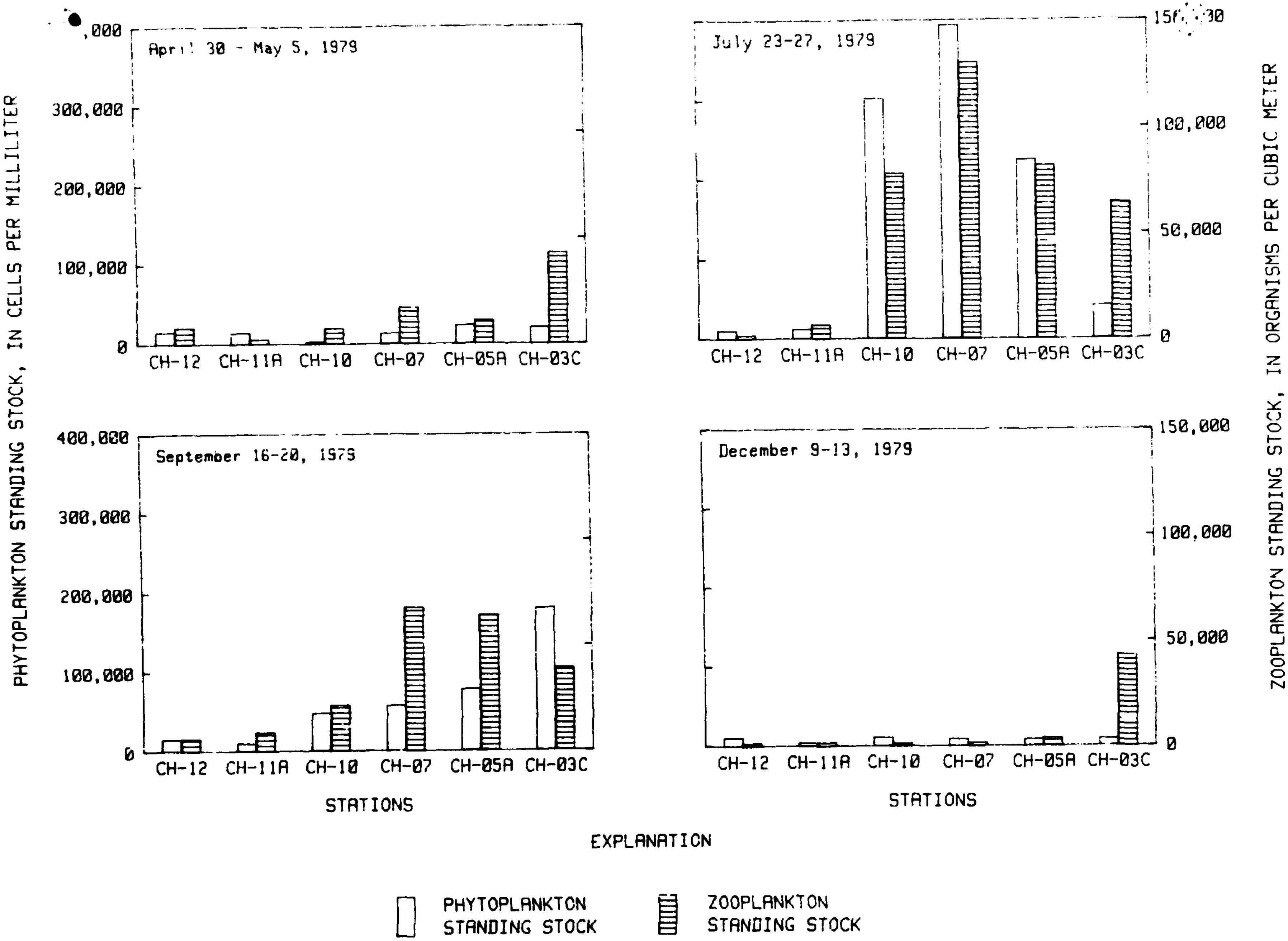


FIGURE 42.--Longitudinal distribution of phytoplankton and zooplankton standing stocks in West Point Reservoir for selected data-collection trips.

The AGP assay data that are derived in the laboratory under controlled conditions of light and temperature do not necessarily reflect conditions in the natural aquatic environment from which the samples are taken. Only the growth potential at a given time is measured under these circumstances, and many environmental factors that could alter the AGP cannot be simulated in a laboratory.

AGP-USGS assay data showed that the availability of nutrients decreased in response to increases in phytoplankton concentrations from the upper to the lower reaches of the reservoir (fig. 41).

The AAP:BT (Algal Assay Procedure: Bottle Test) procedure was used to define possible nutrient limitation in West Point Reservoir, and specifically whether this limitation could be due to nitrogen, phosphorus, or trace element deficiency. This was accomplished by measuring the growth response of <u>Selenastrum capricornutum</u> to singular and combined additions of 0.05 mg/L phosphorus as K_2HPO_4, 0.01 mg/L nitrogen as $NaNO_3$, and 0.01 mg/L EDTA (ethylenediamine tetraacetate) as Na_2EDTA to the test waters.

Figure 43 shows the effects of nutrient additions to the test water from West Point Reservoir. Growth responses due to nutrient additions were compared to growth responses in inoculated control flasks. The responses obtained in the control plus nitrogen and nitrogen plus EDTA additions identified nitrogen as the primary growth-limiting nutrient during the stratified period in the lotic section of the reservoir. In the lentic section, the growth response indicated that during the stratified periods, phosphorus was the primary growth limiting nutrient. Figure 43 illustrates the effects of uptake and utilization of nutrients in autotrophic production and the subsequent depletion of these nutrients as demonstrated by the AGP response. Also, phosphorus addition in the presence of excess nitrogen seemed to support growth to its maximum.

Synthetic organic ligands such as Na_2EDTA are added to culture media to make sure trace elements are available to support algal growth. The growth responses attained with the addition of EDTA, however, were not conclusive. The algal response to EDTA addition could have been a result of secondary growth-regulating nutrient deficiencies and(or) the ability of <u>S. capricornutum</u> to metabolize the nitrogen contained in the Na_2EDTA complex.

Eutrophication and West Point Reservoir

Chemical and biological changes within West Point Reservoir and downstream from West Point Dam are the result of accelerated eutrophication, largely attributable to the activities of man. Cultural eutrophication, which is generally manifested by excessive growth of aquatic primary producers, could have deleterious effects on the beneficial uses of the reservoir and water downstream from West Point Dam.

In response to concern over potential and realized water-quality deterioration of many lakes and reservoirs in the United States, the Congress included Section 314-A of the Federal Water Pollution Control Act Amendments of 1972 and 1977, which required States to classify their lakes and reservoirs in terms of their degree of eutrophication. For those water bodies found to be excessively fertile, the States are required to develop nutrient control programs to restore the water quality of such lakes and reservoirs.

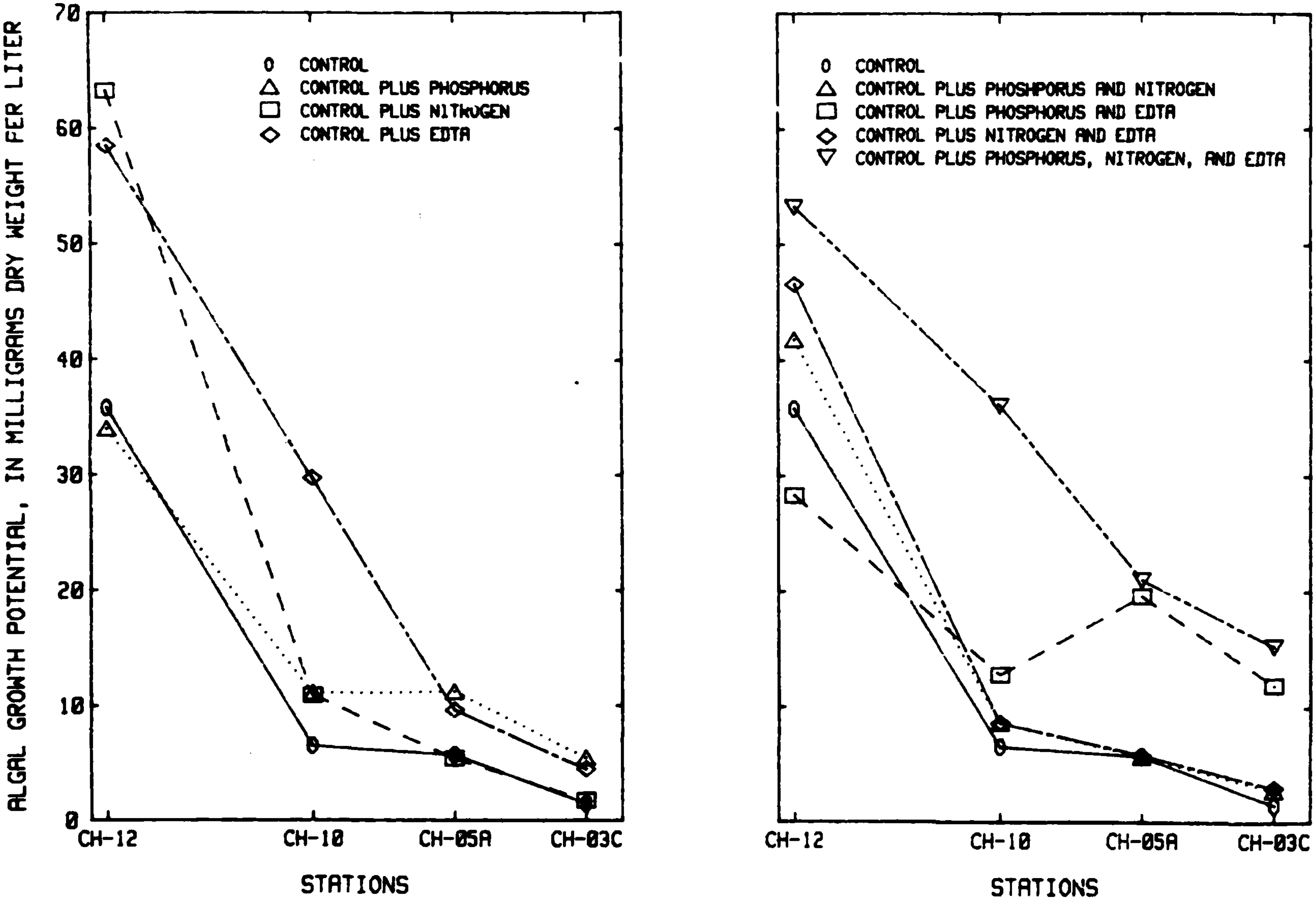


FIGURE 43.--Effect of nutrient addition to water from West Point Reservoir on the growth of Selenastrum capricornutum, August 14-17, 1978.

To accomplish the assessment of reservoir management options described above, it is necessary that water-quality conditions be quantified. A number of schemes for classifving lakes and reservoirs numerically according to trophic status have been reported in the literature (Dillon, 1975; Larsen and Mercier, 1976; Vollenweider 1975; Hern and others, 1981; Carlson, 1977; Canfield and Bachmann, 1981).

To complicate matters even further, there presently exist no generally accepted definitions of the terms used for the different trophic states. This lack of precise definition of trophic status makes it difficult to assess the accuracy of all the different eutrophication schemes. Because the whole concept of eutrophication and trophic status is subjective and highly variable, there is no single approach that will result in unequivocal conclusions concerning the status of or potential for eutrophication.

Numerous attempts have been made to classify West Point Reservoir. The Georgia Department of Natural Resources (1976) related information from West Point Reservoir to the data base of 15 other Georgia reservoirs in the National Eutrophication Survey. From this data base, a reservoir quality index was used to rank reservoirs according to their trophic status and West Point Reservoir ranked next to the most eutrophic. Davis and others (1979), on the other hand, determined that the reservoir was only mesoeutrophic. Results obtained by Vick and others (1976) lead to the conclusion that enough phosphorus was present to produce eutrophic conditions in West Point Reservoir. Their results were plotted against each of three "phosphorus only" models developed by Vollenweider (1975), Dillon (1975), and Larsen and Mercier (1976). West Point Reservoir data consistently plotted within the defined eutrophic zone. J. B. McConnell (U.S. Geological Survey, written commun., 1981), utilizing historic data and data collected during this study, also evaluated West Point Reservoir as being eutrophic. Care must be taken in interpreting the results of these various models. Because of the emphasis on arbitrary ambient total phosphorus levels in these models, excessive primary production or manifestations of nutrient enrichment were not considered. Therefore, the models used above are comparative and not predictive models.

A major point of confusion with existing terminology is that eutrophic conditions are commonly equated with poor water quality. Poor or excellent water quality depends on the designated use of that water. Even though trophic state models evaluated the reservoir as eutrophic, the visually observed quality and use of the reservoir indicated it was not eutrophic to the extent that any designated uses of the reservoir were impaired. The only apparent manifestation of eutrophication in West Point Reservoir during the study period was the anoxic condition of the hypolimnion during summer stratified periods. Also, the various segments of West Point Reservoir react differently under similar environmental stress and the trophic classification changes at different locations within the reservoir, at various times of the year, and under diverse hydrologic regimes.

Bottom Material Characteristics

Particle-size and constituent concentration data of bottom material were collected from West Point Reservoir to provide information on the presence, concentration, and distribution of potentially harmful substances in the bottom sediments of the reservoir and the river below the dam.

The downstream gradation of bottom material particle size from sand to silt plus clay between the headwaters of the reservoir and the dam pool is indicative of decreasing velocities through the reservoir. Sand-size particles carried as suspended and bed load by the Chattahoochee River are retained in the upper section of the reservoir as the flow begins to decrease. Suspended particles finer than sand continue to settle out as the downstream velocities progressively decrease (fig. 44). The particle size of bottom material from tributary stations were more characteristic of mainstem reservoir stations than of the river stations below West Point Dam.

The streambed at the stations below West Point Dam was constantly being scoured by high-velocity water during release periods. This fact, along with the probable absence of silt and clay in the release water, accounts for the sparcity of fine materials in the bottom materials at these stations. The 30-percent fraction of silt and clay at station CH-01A in 1979 was attributed to problems in obtaining a representative sample through the cross section. Most of the riverbed at station CH-01A consisted of scoured bedrock, except for the immediate river's edge.

Within the reservoir, measurable concentrations of certain chemical constituents occurred where silt and clay particles comprised most of the bottom material. The relation of these chemical constituents to particle size is illustrated in figures 45 and 46. Many of these substances (especially the chlorinated hydrocarbons) have low water solubility, which favors their rapid sorption on suspended or sedimented materials.

Little inference should be made from the comparison between 1978 and 1979 data because any conclusions made utilizing only two samples 1 year apart would be pure conjecture. The important point is that measurable quantities of potentially hazardous substances were found in the bottom material.

Fish Tissue Quality

The major sources of chlorinated hydrocarbons and trace metals in water are runoff from treated lands, industrial discharges, and domestic sewage. Contributions may also occur in fallout from atmospheric drift and in precipitation.

Chlorinated hydrocarbons and trace elements in the water commonly reach reservoirs in concentrations nonlethal to aquatic organisms (National Academy of Sciences, 1974). These substances have a low water solubility that favors their rapid sorption on suspended and bottom materials and their affinity to plant and animal lipids. In reservoirs, bottom materials apparently act as a sink from which these substances are released into the water according to the solubility of the compound, the concentration in the bottom material, and the type of bottom material. Therefore, accumulation of these contaminants in bottom material may lead to toxicity to aquatic organisms or bioaccumulation within the food chain. For example, concentrations of these contaminants in water below the practical limits of detection have resulted in unacceptable residues in fish for human consumption and have affected reproduction and survival of aquatic organisms.

All of the chlorinated hydrocarbons are subject to metabolic and nonmetabolic degradation in the environment. Specific compounds, however, vary widely in their rate of degradation, and some form degradation products that

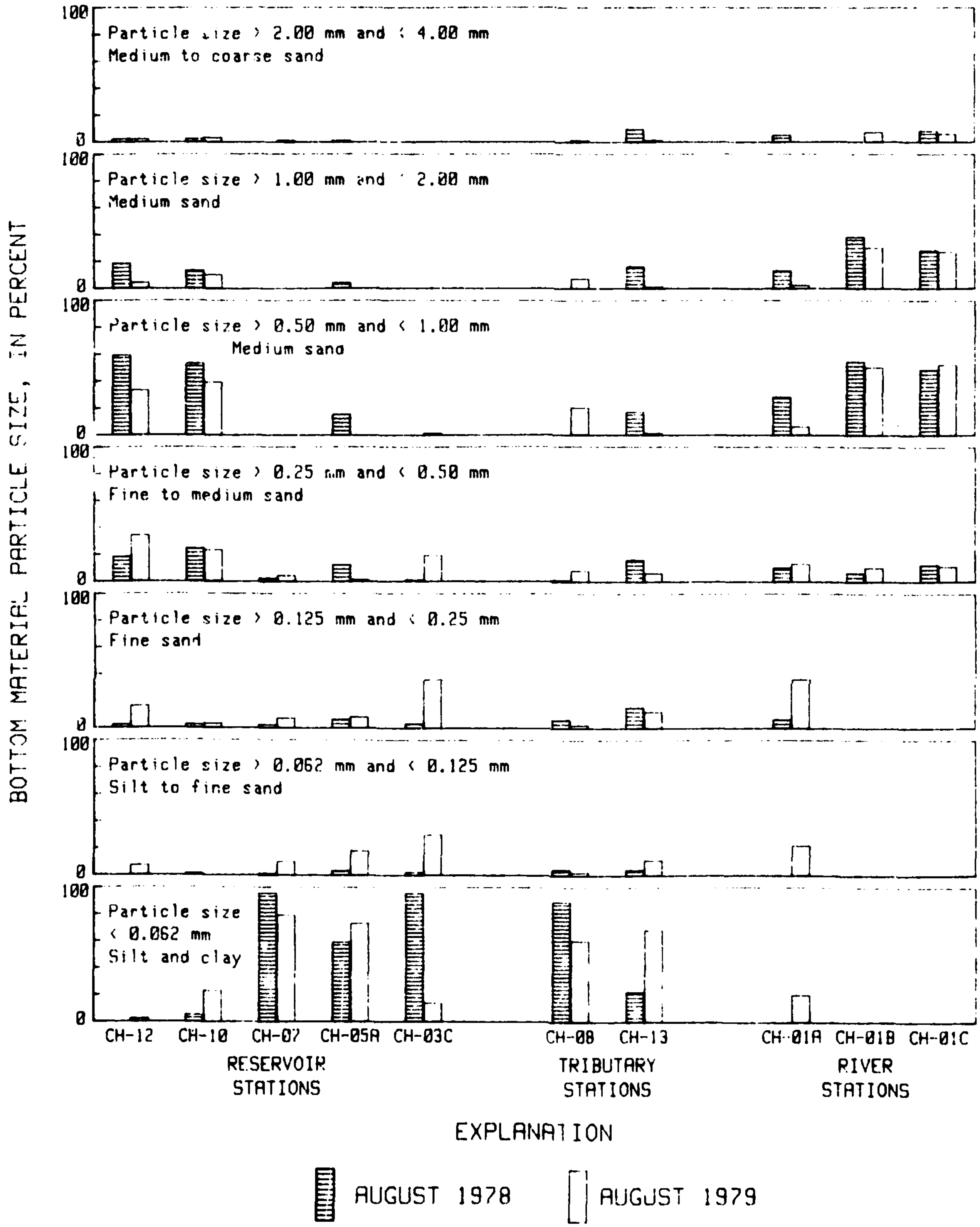


FIGURE 44.--Particle-size distributions of bottom material in and below West Point Reservoir, 1978 and 1979.

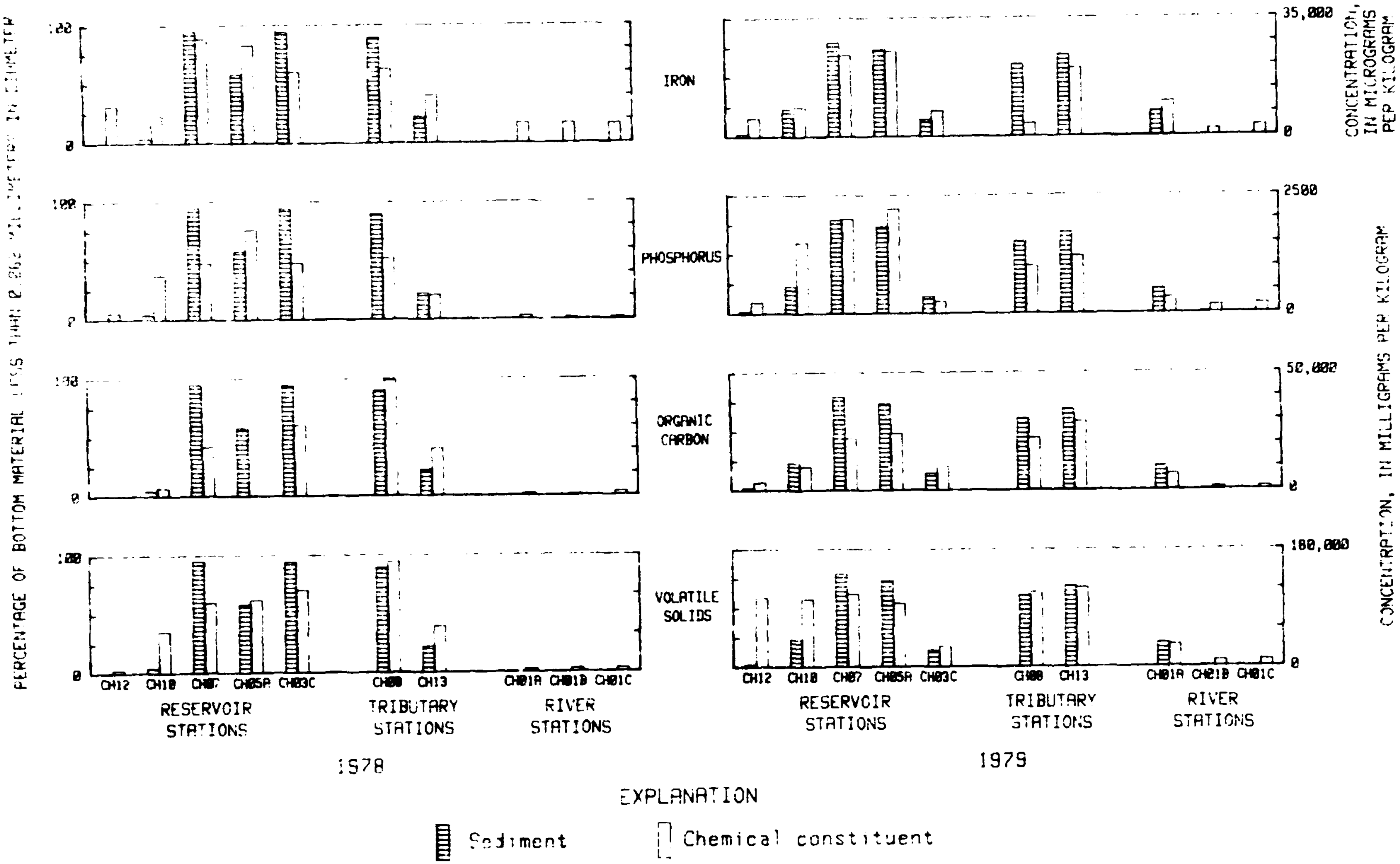


FIGURE 45.--Comparison of the percentage of silt and clay in bottom material to the concentration of iron, phosphorus, organic carbon, and volatile solids in bottom material from West Point Reservoir.

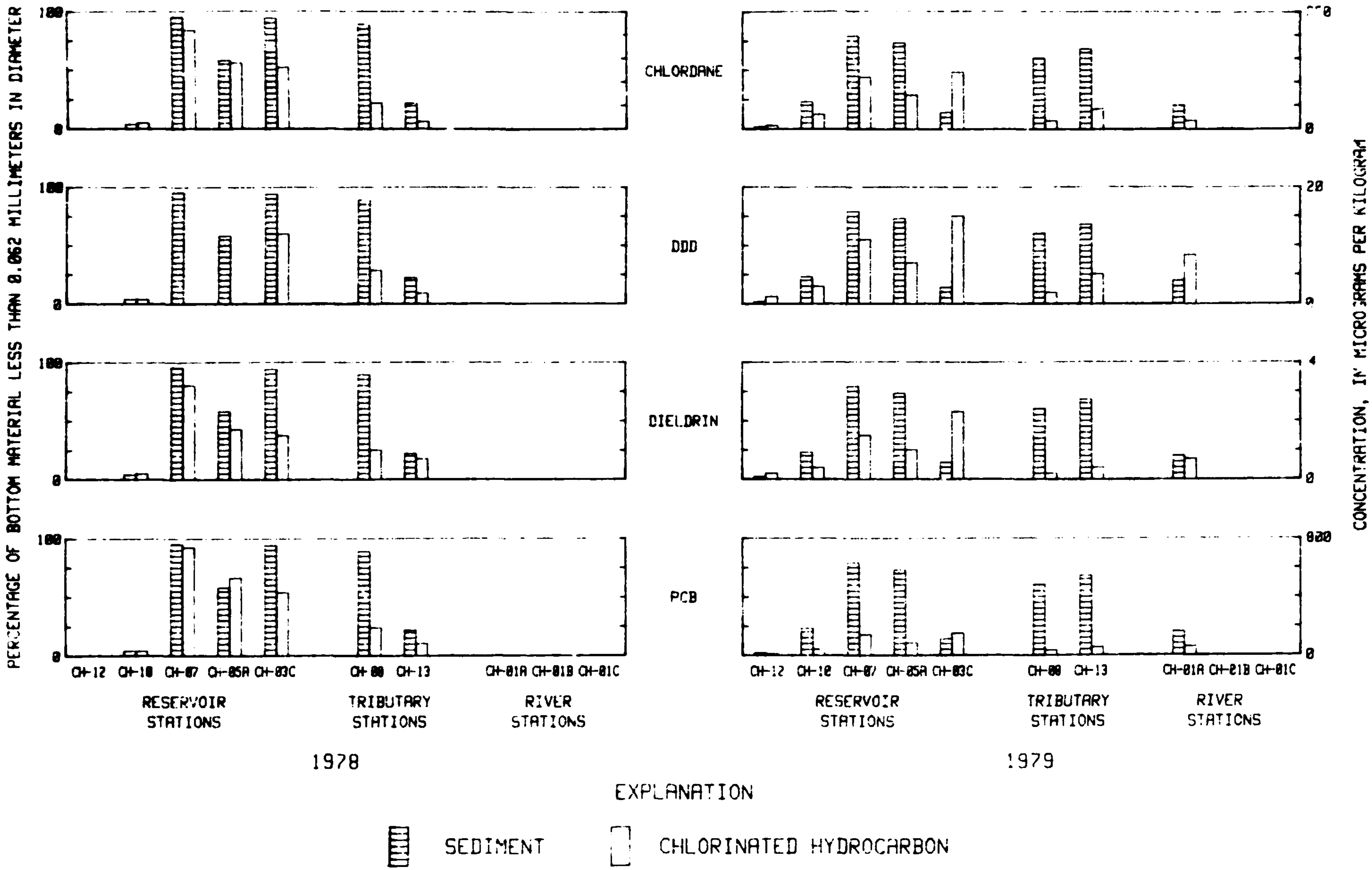


FIGURE 46.--Comparison of the percentage of silt and clay in bottom material to the concentrations of selected hydrocarbons in and downstream from West Point Reservoir.

may be both persistent and toxic. Chlorinated hydrocarbons are extremely stable, degrading slowly or forming persistent degradation products. Aquatic organisms may accumulate these compounds directly by absorption from water or by consumption of contaminated food organisms (National Academy of Sciences, 1974).

In order to document and substantiate contaminant residue bioaccumulation in West Point Reservoir, whole and fillet (1979 only) fish tissue samples from two tributary reservoir sites were analyzed for a select number of chlorinated hydrocarbons and trace metals in 1978 and 1979. Results of the fish tissue analyses for these select substances which form persistent and toxic residues in the environment are presented in Appendix F.

Most of the of tissue samples contained measurable amounts of chlorinated hydrocarbons and trace metals. PCB's (polychlorinated biphenyls), chlordane, and DDT are especially notable because of their concern to human health.

PCB's, which were found in high concentrations (3,800 ug/kg), are highly persistent and can accumulate in the environment. The National Academy of Sciences (1974) recommends that aquatic organisms should be protected so that the maximum residues in general body tissues will not exceed 500 ug/kg. Using this criterion, several whole fish samples from West Point Reservoir contained concentrations far exceeding this maximum recommended concentration (Appendix F).

The cyclodiene pesticides (chlordane, dieldrin, endrin, aldrin, heptachlor, and heptachlor epoxide) present the greatest hazards of all residual pesticides. (Refer to Appendix F for ranges of concentrations in West Point Reservoir fish tissue.) These substances are highly persistent biologically and readily accumulate in the lipids of terrestrial and aquatic organisms. Even at low dosages, they are highly active carcinogens and affect the central nervous system of man and higher animals, leading to irreversible changes in encephalographic and behavioral patterns (National Research Council, 1977).

DDT and its degradation products are of moderately acute toxicity to man and most organisms. However, low water solubility, high lipid solubility, and subsequent bioaccumulation make these substances extremely persistent in living organisms. The major concern about DDT and its derivatives, therefore, is not their acute toxicity, but their long-term chronic effects. DDT and its degradation products are still present (1978-79) in measurable amounts (<0.1 to 49 ug/kg) in fish tissue samples in West Point Reservoir, even though DDT was banned in the United States on January 1, 1973.

The selected trace metals were not present in high concentrations. However, the need exists for expanded monitoring of trace metals through the food chain up to and including man.

The result of fish tissue analyses during 1978 should not be compared with those during 1979 because of the differences in sampling between 1978 and 1979. The apparent discrepancies in the PCB data collected in 1978 and 1979 are, in part, due to the fact that slightly larger fish were collected in 1978 than in 1979. When dealing with small specimens (young-of-the-year), at least [illegible] to 100 specimens having a minimum total weight of 10g are needed to [illegible] reliable results. The important point, however, is that

measurable concentrations of potentially hazardous chlorinated hydrocarbons were found in whole and fillet fish samples of specimens that were substantially smaller than the minimum size permitted for legal possession. If legal or larger than legal sized fish had been collected, it is probable that greater concentrations of these hazardous substances would have been found in the tissues.

Water-Quality Criteria

An important objective of the study was to define and evaluate water-quality environmental problems in and immediately downstream from West Point Reservoir. Significant water-quality problems were evaluated in terms of State of Georgia water-quality standards and criteria recommended by the U.S. Environmental Protection Agency (table 10).

The distinction between criteria and standards is important because the words are not interchangeable, nor are they synonyms for such commonly used terms as objectives or goals. The National Technical Advisory Committee (1968, p. vii) on water-quality criteria gave the following definitions:

Standard - "a plan that is established by government authority as a program for water pollution prevention and abatement."

Criteria - "scientific requirements on which a decision or judgment may be based concerning the suitability of water quality to support a designated use."

Criteria are meant, therefore, only as guidelines to be used in conjunction with a thorough knowledge of local conditions. Realistic standards are dependent on criteria, designated uses, and implementation, as well as identification of problems and monitoring procedures.

The standards adopted by the State of Georgia include water-use classifications, criteria necessary to support these uses, and a plan for implementation and enforcement. The objectives and intent of the State of Georgia in establishing water-quality standards are to provide enhancement of water quality and prevention of pollution; to protect public health in accordance with the public interest for drinking-water supplies; conservation of fish, game, and other beneficial aquatic life; and agricultural, industrial, recreational, and other beneficial uses.

Because the State of Georgia drinking-water standards are not appreciably different from the other water-use classifications of aquatic life, fishing, and recreation, compliance and(or) violations are discussed only with reference to drinking-water standards. On the other hand, recommended criteria made to the U.S. Environmental Protection Agency (1976) by the National Academy of Sciences are quite different from each water-use classification (table 10).

At present, the section of the Chattahoochee River encompassed by the West Point Reservoir study is under three separate classifications (Georgia Department of Natural Resources, 1980):

(1) Franklin, Ga. (station CH-12), downstream to the confluence with New River is classified for fishing and aquatic life;

(2) The confluence with New River downstream to West Point Dam is classified for recreation;

(3) West Point Dam downstream to the West Point, Ga., water intake is classified for drinking; and

Table [illegible].--Water-quality standards and recommended criteria applicable to West Point Reservoir and the Chattahoochee River downstream from West Point Dam

[Standards and recommended criteria listed as maximum concentrations in milligrams per liter, except as indicated. <, less than, >, greater than]

	Recommended criteria			Standards
	Federal			State (Georgia)[1]
	Public water supply	Aquatic life	Recreation	
Water temperature (°C)	None	[2]Variable	[3]Not <15.0 or >29.5	[4]32
pH (units)	[2]Not <5.0 or >9.0	[2]Not <6.5 or >9.0	[3]Not <6.5 or >8.3	[4]Not <6.0 or >8.5
Dissolved oxygen	None	[2]Not <5.0	None	[4]Not <5.0 (daily mean) [4]Not <4.0 (individual sample)
Residue, nonfilterable, total	do.	Not >10 percent reduction in the seasonal norm of the compensation point[2]	do.	No standard
Residue, filterable,	[3]500	None	do.	Do.
Alkalinity	[5]Not <30 or >500	[2]20	do.	Do.
Carbon dioxide, free	None	[3]60	do.	Do.
Sulfate, dissolved	[2]250	None	do.	Do.
Sulfur, sulfide, total	None	[2]0.002 undissociated H_2S	do.	Do.
Phosphorus, orthophosphate, dissolved	do.	None	do.	Do.
Nitrogen, nitrate, total	[2]10	do.	do.	Do.
Nitrogen, ammonia, total	[3]0.5	[2]0.02 undissociated NH_3	do.	Do.
Iron, dissolved	[2]0.3	[2]1.0	do.	Do.
Manganese, dissolved	[2]0.05	[2]0.01	do.	Do.
Zinc, total	[2]5.0	0.01 of the 96 hr LC50 using bioassay of sensitive organism	do.	Do.
Color (platinum-cobalt units)	[2]75	Not >10 percent reduction in the seasonal norm of the compensation point[2]	do.	Do.
Turbidity (nephelometric turbidity units)	None	do.	do.	Do.
Bacteria	[3]2,000 colonies/mL	None	Log mean >200/mL per month or 10 percent samples with >400 mL per month	[6]Variable

1 State of Georgia standards apply to public water supply, aquatic life, and recreational categories of water.
2 U.S. Environmental Protection Agency, 1976b.
3 National Academy of Sciences, 1974.
4 Georgia Department of Natural Resources, 1977.
5 National Technical Advisory Committee, 1968.
6 The State of Georgia water-quality standards for bacteria for the water-use classifications are as follows:
Drinking water supplies - Fecal coliform are not to exceed a geometric mean of 1,000 per 100 mL based on at least four samples taken over a 30-day period and not to exceed 4,000 per mL in more than 5 percent of samples in any 90-day period.
Recreation - Should water-quality studies show that natural fecal coliform levels exceed a geometric mean of 200 per 100 mL, mean fecal coliform level shall not exceed 300 per 100 mL in lakes and reservoirs and 500 per 100 mL in free-flowing freshwater streams and rivers.
Fishing - Fecal coliform should not exceed a geometric mean of 1,000 per 100 mL based on at least four samples taken over a 30-day period and not exceed a maximum of 4,000 per 100 mL.

(4) The West Point, Ga., water intake downstream to Langdale, Ala., is classified for fishing and aquatic life.

Even though sections of West Point Reservoir and the Chattahoochee River in the study area are not classified for public water supply, the following discussion of whether chemical and biological concentrations exceed the limits of water-quality standards is in relation to drinking-water standards. This is a realistic approach because municipal water users withdraw at various locations from Franklin, Ga., downstream to Langdale, Ala.

Most of the parameters listed in table 10 were not present in concentrations considered serious in terms of water-quality standards and(or) criteria. Certain parameters, however, are worthy of mention.

Perhaps the most serious concern was the drastically lowered dissolved-oxygen concentrations during periods of thermal stratification. Water-quality data show severe hypolimnetic oxygen deficiency in the reservoir from stations CH-10 to CH-03C after thermal stratification was established in the spring of 1978 and 1979. This environment favored:

(1) Increase of free carbon dioxide,
(2) Reduction of nitrogen compounds to ammonium,
(3) Reduction of dissolved sulfate to hydrogen sulfide, and
(4) Solubilization of heavy metals.

Although drinking-water standards and recommendations for aquatic life and recreation do not realistically hold for the hypolimnion of stratified reservoirs, they offer guidelines for the prevention of potentially serious problems downstream from the reservoir. For example, during periods of severe hypolimnetic anoxia, the release water from West Point Reservoir consistently did not meet water-quality standards for dissolved-oxygen concentrations at the data-collection stations immediately below the reservoir (fig. 23). During maximum daily release periods of 1978 and 1979 at these stations, dissolved-oxygen concentrations ranged from 2.0 to 6.3 mg/L, with a mean of 3.8 mg/L. The State of Georgia requires a minimum concentration of 4 mg/L at all times to meet water-quality standards.

Georgia State standards for pH were not always attained in the reservoir and in the river downstream from West Point Dam. Epilimnetic pH values in the reservoir measured greater than 8.5 on several occasions. High pH values were intermittent, of short duration, and associated with phytoplankton-photosynthetic activity. Even though such occurrences were technical violations, they need not be viewed as indicators of a water-quality problem except as an indication of potential eutrophication. In the river downstream from West Point Dam, pH standards were not met during both high and low flows at all times of the year. The standards were most frequently not met in the summer when anoxic hypolimnetic waters were released from the reservoir during maximum daily release periods. The occurrences of low pH in the hypolimnion during the summer are an indirect problem associated with a reducing environment and solubilization of metals. During these conditions of low pH, the potential exists for an increase in the toxicity of the water due to increases in the concentrations of certain metals or metallo-organic complexes.

At present (1980), there are not standards for nonfilterable residue. However, "for a high level of protection," it is recommended that aquatic life not be subjected to concentrations greater than 25 mg/L (National Academy of Sciences, 1974). High concentrations of nonfilterable residue can interfere with fish production and respiration by covering eggs and gill

structures (National Academy of Sciences, 1974). During intense storm activity and subsequent surface runoff, nonfilterable residues above the recommended level were found in the reservoir.

The development of reducing conditions in the hypolimnion after thermal stratification resulted in solubilization of iron and manganese to concentrations that were at times over 50 times greater than the Federal criteria of 0.3 mg/L for dissolved iron and over 100 times greater than the Federal criteria of 0.05 mg/L for dissolved manganese.

Data for metals in the Chattahoochee River downstream from West Point Dam clearly illustrate the influence of hypolimnetic release on downstream water quality. During periods of thermal stratification, the release water from West Point Reservoir consistently did not meet Federal water-quality criteria for iron and manganese concentrations at the data-collection stations immediately below the reservoir. On the other hand, post-mixing releases during unstratified periods rarely exceeded maximum allowable dissolved trace metals concentrations.

Bacteriological data were inadequate to evaluate reservoir and downstream water quality in terms of State standards. For example, the State standard (table 10) requires a minimum of four fecal coliform samples per 30 days for proper evaluation. Sampling frequency during the study was too infrequent to meet this requirement. Also, in the reservoir samples for fecal streptococci analyses were collected instead of the specified fecal coliform samples.

SUMMARY AND CONCLUSIONS

Water-quality, bottom-material, and fish-tissue samples were collected from West Point Reservoir to determine whether water-quality problems have resulted subsequent to impoundment. Water-quality and bottom-material samples were also collected in the Chattahoochee River downstream from the dam to determine the impact of impoundment on river-quality conditions during thermally stratified and unstratified periods.

Significant concentrations of total iron, total manganese, total phosphorus, total organic carbon, and volatile solids in bottom material occurred in the lentic section of the reservoir and at the tributary stations, where silts and clays constitute most of the bottom material. PCB's and chlordane concentrations in the bottom material were also relatively high in this section of the reservoir.

Young bullhead catfish and largemouth bass tissue samples analyzed for chlorinated hydrocarbons showed significant amounts of chlordane and PCB's in whole fish and fillet samples. Concentrations in several of the whole fish samples far exceeded the maximum recommended limit of 500 ug/kg. It is important to note, however, that these samples were from fish substantially smaller than the minimum-size permitted for legal possession.

The lentic section of the reservoir showed the greatest biological activity in terms of plankton standing stock, adenosine triphosphate concentration, and chlorophyll production. The dominant plankton groups, in terms of numbers per unit volume, were blue-green algae and rotifers.

Algal growth potential assay data showed that the availability of nutrients decreased in response to increases in phytoplankton concentrations from the upper to the lower reaches of the reservoir. For example, the maximum algal growth potential value was obtained at the uppermost data-collection station at Franklin, Ga., whereas the minimum value was recorded at the dam pool station. The "Algal Assay Procedure: Bottle Test" identified nitrogen as the primary growth limiting nutrient in the lotic section and phosphorus as the primary growth limiting nutrient in the lentic section during stratified periods. Also phosphorus addition in the presence of excess nitrogen appeared to support growth to its maximum. Even though the AGP assay identified nitrogen as the limiting nutrient in the lotic section, light limitation and relatively rapid water movement are probably the primary causes for limited algal biomass in this section of the reservoir.

Water-quality data show that severe hypolimnetic oxygen deficiency developed in the reservoir after thermal stratification was established in the spring of both 1978 and 1979. This environment favored the release of iron, manganese, phosphorus, and other constituents from the sediments.

During periods of thermal stratification, the release water from West Point Reservoir consistently exceeded the limits of water-quality standards and(or) criteria for iron, manganese, and dissolved-oxygen concentrations at the data-collection stations immediately downstream from the reservoir. The primary influence of the reservoir on downstream river water quality could be attributed to seasonal changes in the chemical nature of the water column at the dam pool, resulting from thermal stratification and dissolved-oxygen depletion.

Physical and chemical differences between minimum and maximum daily release water were, for the most part, negligible because the difference in altitude of the intakes for the main and service turbines is only 1.52 m. Most of the differences that were found resulted from physical and chemical changes of the water occurring immediately after release from the reservoir.

RECOMMENDATIONS

This report provides a data base from which future water-quality investigations of West Point Reservoir and other reservoirs in the Southeastern United States can draw historical information. Water-quality monitoring in the reservoir may need to be continued and expanded to ensure compliance with all aspects of multi-use water-quality criteria. The following are some suggested subjects of study for future consideration:

I. Toxic Substances

The need to manage toxic substances in water supplies has been designated by the U.S. Environmental Protection Agency as a priority in achieving National water-quality goals. Environmental pollutants (toxic, potentially carcinogenic, ecologically damaging) have been the subject of major legislation in the 1972 amendment to the Federal Water Pollution Control Act (PL 92-500), the Safe Drinking Water Act of 1974 (PL 93-523), and the Toxic Substances Control Act (PL 94-469). These laws establish the need for extensive measurements to determine the presence and concentrations of a broad variety of compounds.

Many of these toxic substances have a low water solubility, which favors their rapid sorption on suspended or sedimented materials after introduction to receiving water. In streams, these contaminants are in continuous transport on suspended particulate material or on bottom materials. Major receiving basins and especially reservoirs may accumulate substantial amounts of contaminants. Accumulation of these contaminants in bottom materials may lead to toxicity to aquatic organisms or bioaccumulation within the food chain. Determining their fate in the aquatic environment will be important because these processes may affect human health.

Future studies could emphasize the collection and analysis of suspended-sediment, bottom-material, and biological samples to determine the areal extent and fate of naturally occurring or manmade toxic substances in West Point Reservoir. The objectives of such a study would be to determine the presence, inflow contributions, distribution, and ecological significance of environmental pollutants which could present a health hazard to humans.

II. Constituent Loading and Discharge Rates

Accelerated eutrophication in West Point Reservoir is largely attributable to the activities of man and could have significant deleterous effects on the beneficial uses of the reservoir. The chemical composition of the Chattahoochee River undergoes significant changes during impoundment. The changes which are observed in the out-flow at the dam are attributed to a variety of factors that are related to the action or an interaction of regulated inflow and outflow, thermal stratification, mixing, biological, and microbiological activities.

The relation between nutrient loads and subsequent changes in reservoir water quality needs to be understood and quantified so that water-quality management approaches can be properly evaluated. J. B. McConnell (U.S. Geological Survey, written commun., 1981) states that "data recently collected on the West Point Project will provide information that is needed to help understand eutrophication processes, but will not provide information needed to quantify nutrient load-reservoir response relations; information that will ultimately be needed to evaluate water-quality management approaches."

The objectives of a future study would be to accurately assess seasonal and annual nonpoint transport, loading, and discharge rates for West Point Reservoir. This information would be essential input to nutrient load-reservoir response models that could provide evaluation of various water-quality management alternatives.

III. Community Metabolism

West Point Reservoir must be considered a dynamic trophic system in which flow and constituent loading interact with thermal stratification and community metabolism to alter the water chemistry within the reservoir and the water chemistry of the outflow. Many of the chemical changes are a result of community metabolism, therefore a better understanding of the ecology of naturally occurring populations throughout the various trophic levels is important.

If community metabolism is dependent on various abiotic and biotic factors, can trophic models based solely on nutrient loading adequately describe the potential trophic response? If predicted nutrient responses never materialize, what factor(s) are controlling community metabolism? These are questions which make knowledge of the naturally occurring biological processes and responses important in proper reservoir management strategies.

Future studies could include:

(1) delineation of seasonal, spatial, and annual abiotic and biotic growth limiting factors (light, temperature, flow, turbidity, nutrients, trace elements, grazing, and possible toxins)
(2) microbial ecology (composition, function, and processes)
(3) delineation of seasonal, spatial, and annual rates of productivity
(4) delineation of seasonal and spatial succession, composition, and distribution of primary and secondary plankton communities.

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GLOSSARY OF SELECTED TERMS

Alga, algae (n.), algal (adj.). Simple, chlorophyll-containing photosynthetic organisms.

Aliquot (n., adj.). A known exact part of a whole sample.

Allochthonous (adj.). Formed elsewhere than in the region where found.

Anaerobic (adj.). Living in or pertaining to the absence of free oxygen.

Anoxia (n.), anoxic (adj.). An abnormally low or absence of free oxygen.

Autochthonous (adj.). Pertaining to an indigenous origin within the reservoir.

Autotroph (n.), autotrophic (adj.). Microorganisms capable of utilizing inorganic materials as a source of food.

Benthos (n.), benthic (adj.). The community of organisms living in or on the bottom of an aquatic ecosystem.

Biomass (n.). The weight of living matter present in a unit area or volume at a given time.

Bottom material (n.). Lake or river bottom substance, usually consisting of varying amounts and combinations of inorganic and organic material.

Compensation point (n.). The point in a column of water at which oxygen production by photosynthesis balances oxygen uptake by respiration of plants and animals. The compensation point is the lower limit of the euphotic zone.

Ecology (n.), ecological (adj.). The science or study of the relation of organisms or groups of organisms to their environment.

Ecosystem (n.). A system formed by the interaction of a group of living organisms with their environment involving the exchange of matter and energy.

Ecotone (n.). The transition zone between two different communities.

Endemic (adj.). An organism peculiar to a particular locality.

Enrichment (n). Addition or accumulation of plant nutrients within a body of water.

Enteric (adj.). Pertaining to the intestinal tract.

Epilimnion (n.). The upper, relatively warm, circulating zone of water in a thermally stratified lake. The layer of water above the thermocline.

Euphotic zone (n.). That region in a body of water in which the light is sufficient for photosynthesis; commonly considered to be that part of a water body in which the intensity of underwater light equals or exceeds 1 percent of the intensity of surface light.

Eutrophication (n.), eutrophic (adj.). The natural process of enrichment and aging of a body of water that may be accelerated by the activities of man.

Eutrophic water (n.). Water with a good supply of nutrients. This water may support rich organic production such as algal blooms.

Heterotroph (n.), heterotrophic (adj.). Organisms involved in the utilization of complex organic materials as a source of food.

Hypolimnion (n.). The lower, relatively cold, noncirculating water zone in a thermally stratified lake. The layer of water below the thermocline.

Igneous (adj.). Rocks produced under conditions involving intense heat.

Isopleth (n.). A line drawn through all points having the same numerical value.

Lacustrine (adj.). Pertaining to lakelike features.

Lentic (adj.). Pertaining to or living in still water.

Limnetic (adj.). Pertaining to or living in the open water of a lake or reservoir.

Limnology (n.), limnological (adj.). The science or study of the physical, chemical, and biological aspects of inland water.

Loading (n.). The amount of a given substance or type of material discharged or otherwise entering a body of water in a given unit of time.

Lotic (adj.). Pertaining to or living in flowing water.

Mesoeutrophic water (n.). Water that is moderately enriched and moderately productive biologically.

Metalimnion (n.). The middle layer of water in a thermally stratified body of water in which temperature decreases rapidly with depth.

Metamorphic (adj.). Rocks exhibiting structural change or metamorphism.

Monomictic (adj.). A body of water having only one period of free circulation.

NGVD of 1929 (National Geodetic Vertical Datum of 1929) (n.). A geodetic datum derived from a general adjustment of the first-order level nets of both the United States and Canada. It was formerly called Sea Level Datum of 1929 or mean sea level. Although the datum was derived from the average sea level over a period of many years at 26 tide stations along the Atlantic, Gulf of Mexico, and Pacific Coasts, it does not necessarily represent local mean sea level at any particular place.

Nutrient (n.). Any chemical element, ion, or compound that is required by an organism for the continuation of growth, reproduction, and other life processes. Trace nutrients are substances required by an organism in very small amounts.

Oligotrophic water (n.). Water of low nutrient content that characteristically has little organic production.

Oxidation (n.). The process in which oxygen is added to a substance or in which an element loses electrons.

Peristaltic pump (n.). A pump which utilizes successive waves of contraction of hollow tubing to force liquids through the tubing. There is no contact between the liquid and the pump.

Pathogenic (adj.). An organism causing or capable of causing disease.

Penstocks (n.). A sluice or gate for regulating the flow of water.

Photosynthesis (n.), photosynthetic (adj.). A process whereby autotrophic organisms utilize light as an energy source and convert chemical compounds to carbohydrates. In the process, carbon dioxide is utilized and oxygen is released.

Primary production (n.). The weight of new organic material created by photosynthesis, or the energy it represents. Primary productivity is the rate of production.

Reduction (n.). The process in which oxygen is removed from a substance, or in which an element gains electrons.

Respiration (n.). A life process in which carbon compounds are oxidized to carbon dioxide and water. The liberated energy is used in the metabolic processes of living organisms.

Riverine (adj.). Relating to, formed by, living in, or resembling a river.

Secondary production (n.). The weight of the heterotrophic component of an ecosystem.

Spate (n.). A sudden rush of freshwater into the reservoir resulting from a sudden and heavy rainstorm.

Species richness (n.). Total number of species per sample.

Standing stock (n.). An estimate of population densities.

Secchi disc (n.). A circular metal plate, 20 centimeters in diameter, the upper surface of which is divided into four equal quadrants and so painted that two quadrants directly opposite each other are black and the intervening ones are white.

Thermocline (n.). The plane of maximum rate of decrease in temperature in a water body.

Trophic state (n.). The nutritional status of a water body (stage of eutrophication).

Trophogenic zone (n.). The surficial layer of a water body in which organic production from mineral substances takes place on the basis of light energy.

Tropholytic zone (n.). The deeper layer of a water body where organic decomposition predominates because of light deficiency.

Turbid (adj.), turbidity (n.). The ability of materials suspended in water to reduce the penetration of light.

Warm monomictic (adj.). Water bodies of warmer latitudes in which the water temperature never falls below 4°C. These water bodies are characterized by only one circulation period during winter and a stratification period during summer.

APPENDIX

Tables and Illustrations

APPENDIX A

Inflow-outflow water discharge and water temperature data

APPENDIX A-1

Water discharge at U.S. Geological Survey gaging stations around West Point Reservoir, April 1978-December 1979

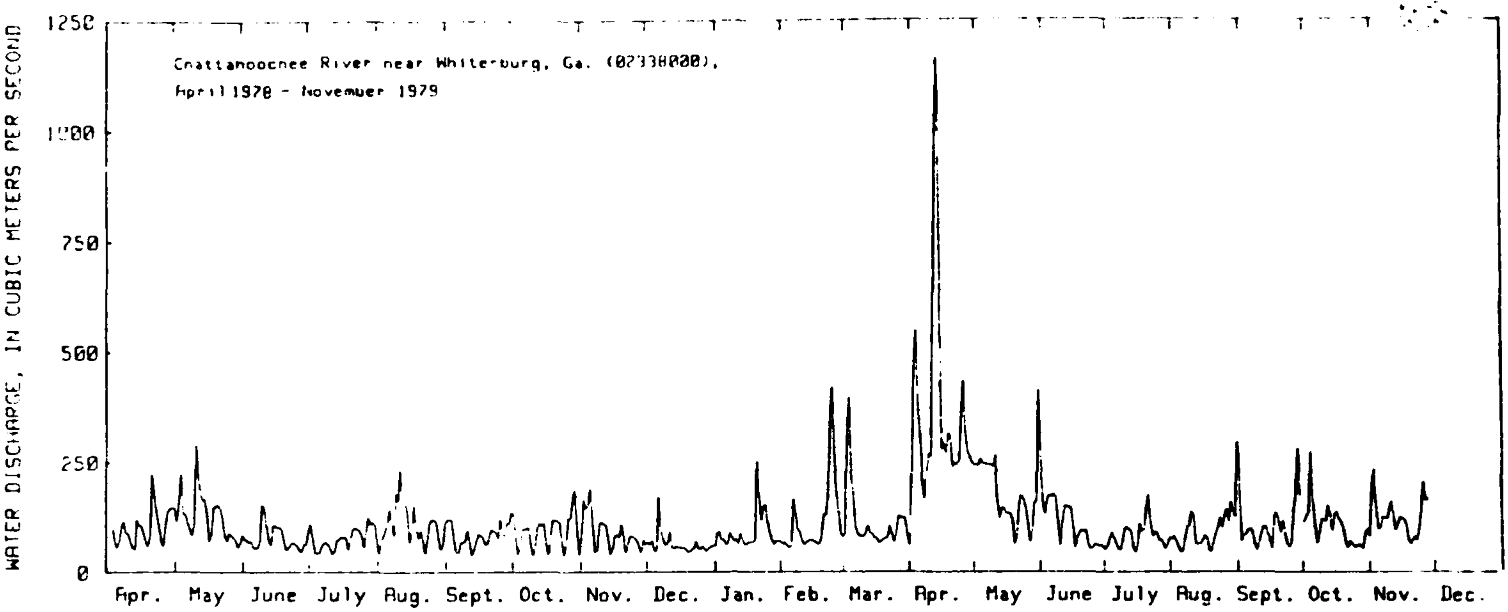
Water discharge at U.S. Geological Survey gaging stations around West Point Reservoir, April 1978-December 1979

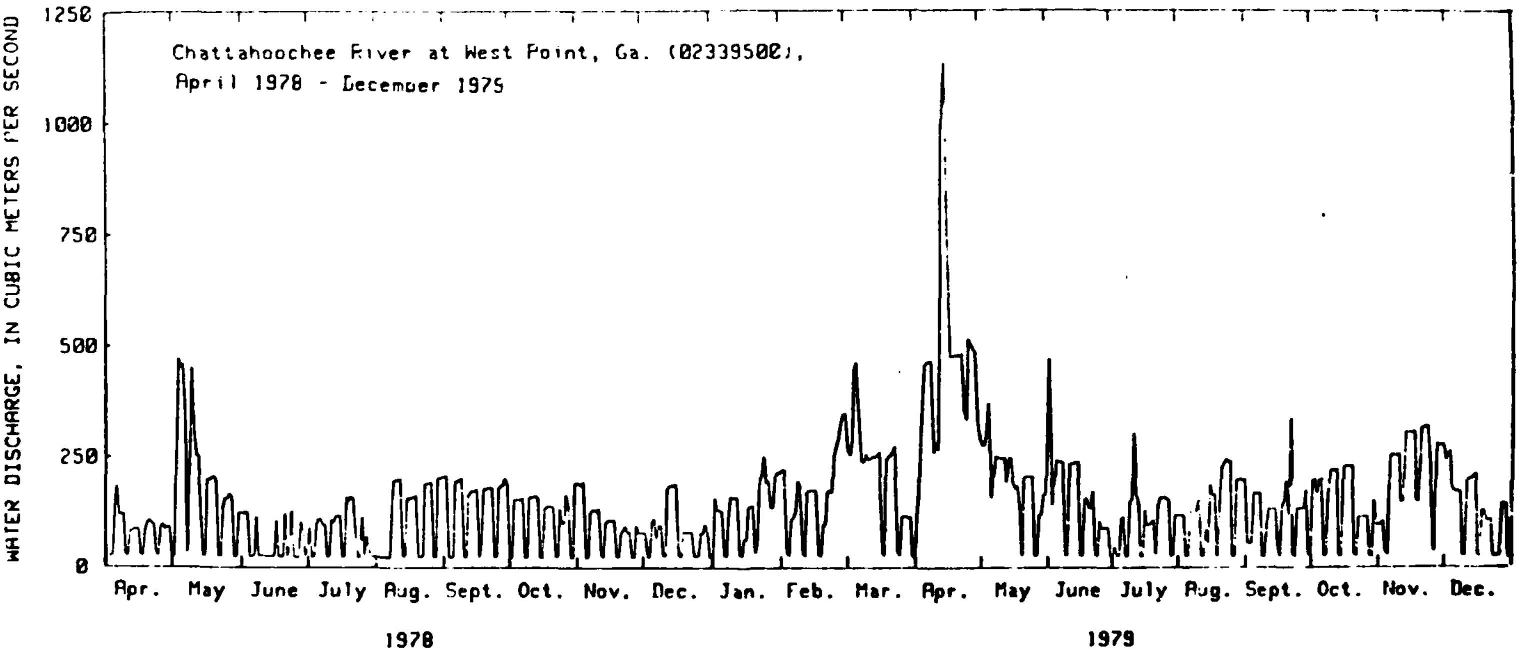
[Datum is NGVD of 1929. *, gaging station not established; H, maximum daily release sampling at CH-01A; L, minimum daily release sampling at CH-01A; +, data not available because of a malfunctioning recorder. Discharge, in cubic meters per second]

Sampling period	Inflow: Chattahoochee River near Whitesburg, Ga. 02338000	Inflow: New River at Corinth, Ga. 02338660	Inflow: Yellowjacket Creek near Hogansville, Ga. 02338840	Inflow: Wehadkee Creek below Rock Mills, Ala. 02339225	Outflow: Chattahoochee River at West Point, Ga. 02339500 — Mean discharge	Instantaneous discharges L	Instantaneous discharges H	Average midnight pool elevation for West Point Reservoir (m)
1978								
Apr. 9-18	82.4	*	*	*	68.8	25.2	340	192.4
Apr. 30-May 14	157	*	*	*	250	25.8	450	194.0
May 30-June 6	67.7	*	*	*	85.0	23.5	558	194.1
July 9-13	57.2	*	*	*	92.9	23.2	300	193.7
Aug. 13-18	105	*	*	*	136	23.8	402	193.3
Aug. 27-31	83.8	*	*	*	167	22.1	453	193.3
Oct. 16-19	90.4	0.4	0.3	0.2	136	45.0	402	193.3
Nov. 27-30	60.3	2.4	1.4	1.0	82.4	49.0	348	190.3
1979								
Jan. 22-24	147	12.2	6.6	6.6	218	+	277	191.5
Mar. 19-22	68.2	3.7	3.0	2.1	254	75.3	479	191.5
Apr. 30-May 5	248	5.1	3.9	4.0	374	27.6	323	190.6
June 11-15	120	1.6	1.2	1.1	237	24.3	473	194.0
July 23-27	85.0	2.9	2.0	1.2	156	26.6	453	193.9
Aug. 20-24	80.7	.8	.7	1.1	238	38.2	467	193.2
Sept. 16-20	96.9	10.2	7.0	4.8	125	22.4	470	193.4
Oct. 14-17	118	1.6	.5	.9	178	22.1	402	193.6
Dec. 9-13	69.7	2.5	1.8	2.7	167	22.7	490	191.0

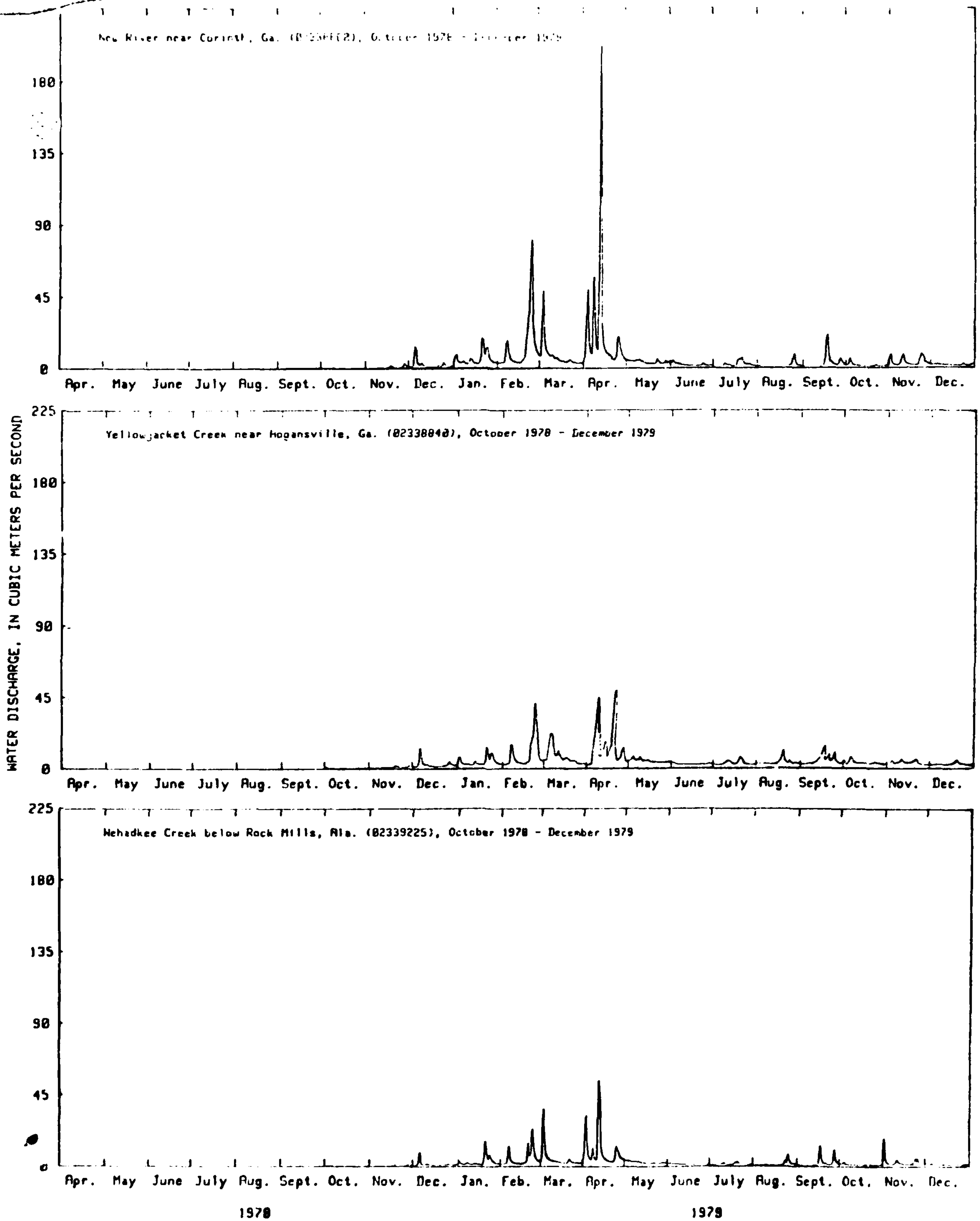
APPENDIX A-2

Graphs showing water discharge at U.S. Geological Survey gaging stations around West Point Reservoir, 1978-79





Water discharge of the Chattahoochee River at U.S. Geological Survey gaging stations above and below West Point Reservoir, 1978-79.



Water discharge of selected tributaries at U.S. Geological Survey gaging stations around West Point Reservoir, 1978-79.

APPENDIX A-3

Water temperature at U.S. Geological Survey gaging stations around West Point Reservoir, April 1978-December 1979

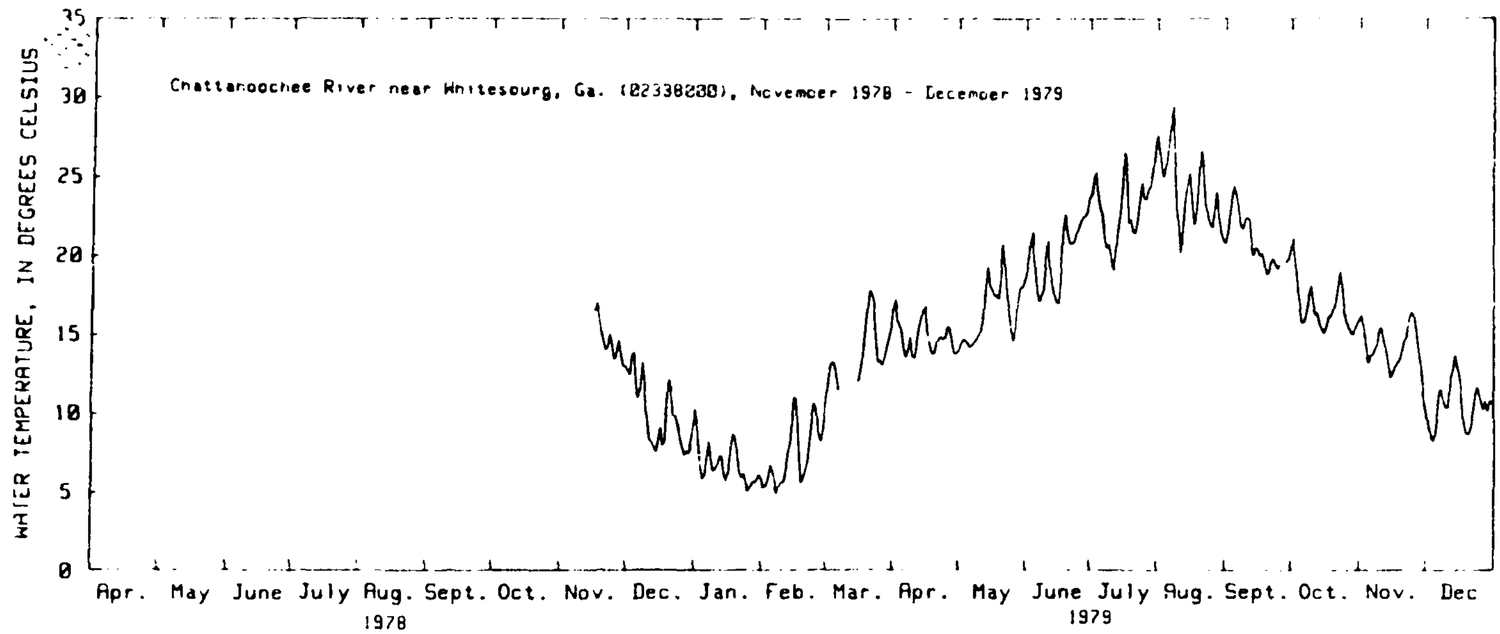
Water temperatures at U.S. Geological Survey gaging stations around West Point Reservoir, April 1978-December 1979

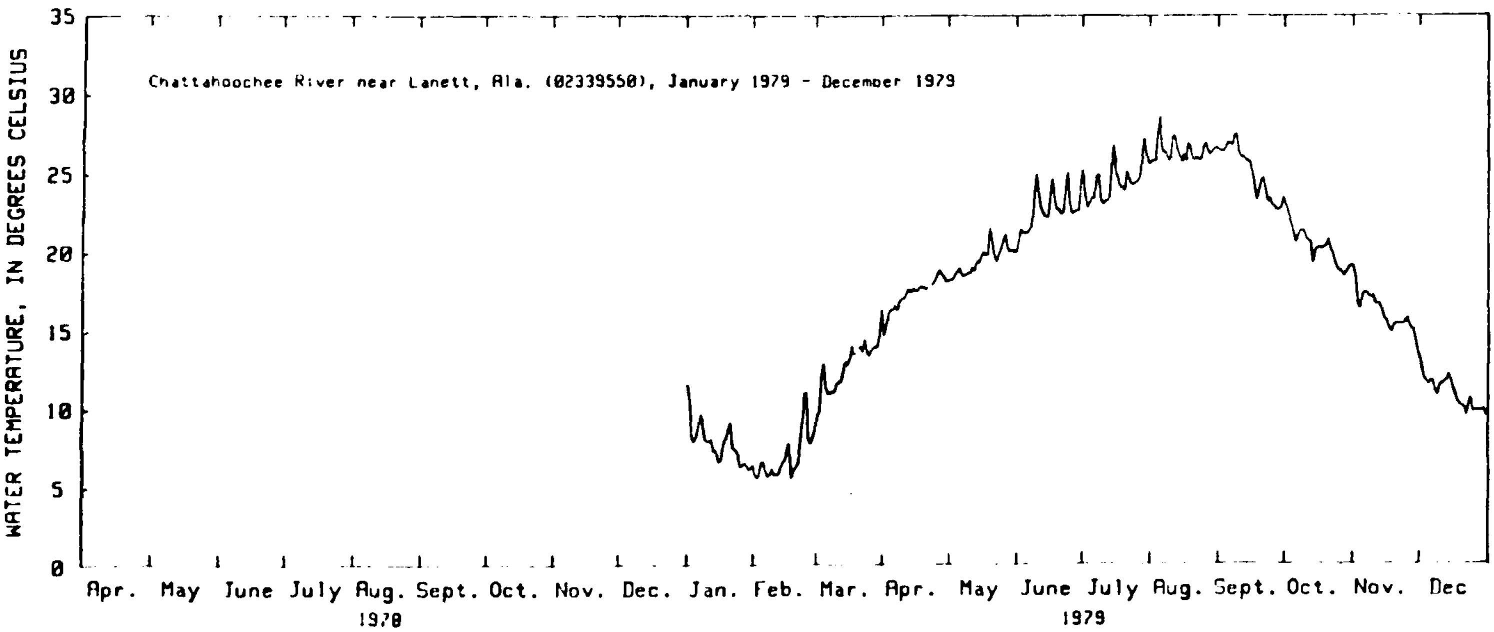
[*, temperature monitor not established; +, data not available because of malfunctioning monitor. Temperature in degrees Celsius]

Sampling period	Inflow												Outflow		
	Chattahoochee River near Whitesburg, Ga.			New River near Corinth, Ga.			Yellowjacket Creek near Hogansville, Ga.			Wehadkee Creek below Rock Mills, Ala.			Chattahoochee River at Lanett, Ala.		
	02338000			02338660			02338840			02339225			02339550		
	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean
1978															
Apr. 9-18	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Apr. 30-May 14	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
May 30-June 6	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
July 9-13	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Aug. 13-18	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Aug. 27-31	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Oct. 16-19	*	*	*	16.5	10.0	13.0	*	*	*	*	*	*	*	*	*
Nov. 27-30	15.2	13.0	14.0	15.0	12.5	13.5	*	*	*	*	*	*	*	*	*
1979															
Jan. 22-24	6.5	5.5	6.0	7.0	4.5	5.5	9.5	9.0	9.5	8.0	6.0	7.0	8.0	6.5	7.5
Mar. 19-22	18.0	13.5	15.5	19.0	14.0	17.5	20.5	12.5	17.0	16.0	12.5	14.5	15.0	12.5	14.0
Apr. 30-May 5	15.0	13.0	14.0	21.0	15.0	18.5	22.5	14.5	19.0	20.0	14.5	18	19.0	17.0	18.0
June 11-15	21.5	17.0	19.0	25.0	19.5	21.5	28.0	18.5	23.0	23.5	18.5	21	25.0	21.5	22.5
July 23-27	24.5	21.5	23.5	26.0	23.5	24.5	27.5	25.0	26.0	+	+	+	27.0	23.5	24.5
Aug. 20-24	27.0	22.0	24.5	28.5	23.0	25.0	27.0	23.0	24.5	+	+	+	27.0	24.5	26.0
Sept. 16-20	21.0	18.5	20.0	22.0	19.0	20.0	23.5	20.0	21.0	22.0	19.0	20.0	25.5	22.0	24.0
Oct. 14-17	16.5	15.0	15.5	16.0	11.5	14.0	17.5	14.5	16.0	15.5	12.0	13.5	20.5	18.0	20.0
Dec. 9-13	13.5	9.5	11.0	12.5	5.0	8.0	+	+	+	+	+	+	12.0	10.0	11.5

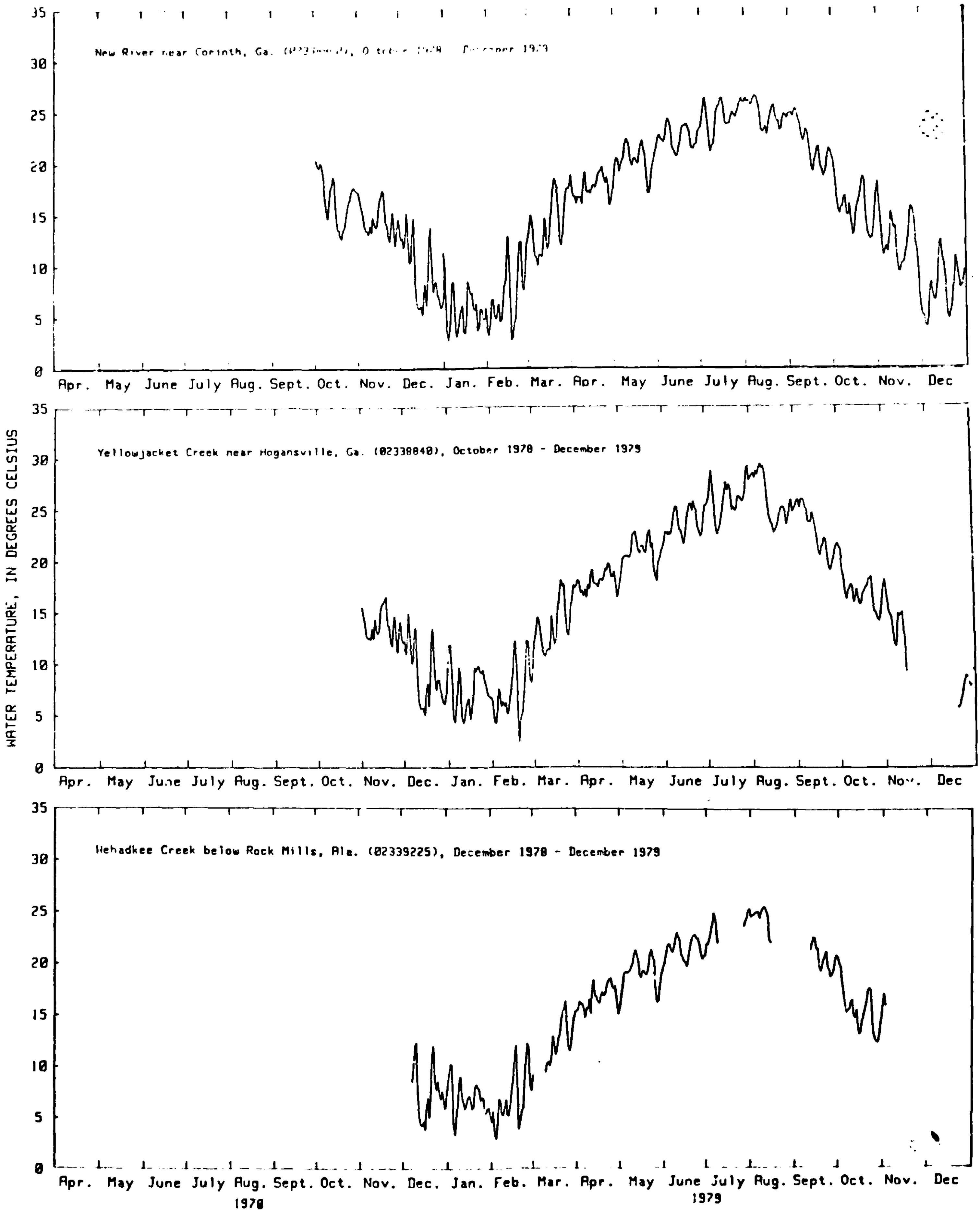
APPENDIX A-4

Graphs showing water temperature at U.S. Geological Survey gaging stations around West Point Reservoir, 1978-79





Water temperature of the Chattahoochee River at U.S. Geological Survey gaging stations above and below West Point Reservoir, 1978-79.



Water temperature of selected tributaries at U.S. Geological Survey gaging stations around West Point Reservoir, 1978-79.

APPENDIX B

Summary of the physical, chemical, and biological data

APPENDIX B-1

Explanation of summary data tables

The values have been calculated with respect to annual stratification cycles (stratified versus unstratified, above and below the thermocline); changing flow conditions in the Chattahoochee River below West Point Dam (maximum versus minimum daily release); and depth weighted. Mean values are given only to illustrate temporal and longitudinal trends. Obviously, seasonal perturbations and anomalies are masked by mean values.

The water column above and below the thermocline at the reservoir sites was determined by examining temperature and dissolved-oxygen profiles for all 17 data-collection trips. Approximate thermocline depths (See following table.) were inferred as the inflection points of the corresponding temperature profiles. In cases where temperature profiles alone did not provide sufficient information, approximate thermocline locations were taken as those depths of greatest metalimnetic oxygen depletion rate. Because each data-collection station in the reservoir was characterized by unique temporal and spatial stratification patterns, the following table is provided to aid the reader in defining the unstratified, 1978 stratified, and 1979 stratified periods for each station.

Approximate depth to the thermocline at stations in West Point Reservoir, April 1978-December 1979

[Depth to thermocline in meters. †, unstratified water column; *, station not established]

Data-collection periods	Main stem stations								Tributary stations		
	CH-12	CH-11A	CH-10	CH-07	CH-05A	CH-03A	CH-03B	CH-03C	CH-08	CH-04	CH-13
April 9-18, 1978	†	*	†	6.5	5.0	†	†	4.5	7.5	*	7.5
April 30-May 14	†	*	†	†	†	9.0	9.0	7.0	5.0	*	11.0
May 30-June 6	†	*	4.5	3.5	3.5	3.5	3.5	3.5	4.5	*	3.5
July 9-13	†	*	7.5	6.0	6.5	7.0	7.0	7.0	5.0	*	7.0
August 13-18	†	*	2.5	4.0	7.0	10.0	9.0	8.5	4.5	*	9.0
August 27-31	†	*	3.5	4.5	5.5	4.5	5.0	5.0	4.5	*	7.5
October 16-19	†	*	†	†	†	†	†	†	†	*	†
November 27-300	†	*	†	†	†	†	†	†	†	*	†
March 19-22, 1979	†	†	†	†	†	†	†	†	9.0	†	†
April 30-May 5	†	†	†	†	†	†	†	†	6.0	†	†
June 11-15	†	†	†	7.5	6.5	11.5	11.0	12.0	9.5	3.0	13.0
July 23-27	†	†	3.5	6.0	8.0	9.0	10.0	9.0	6.0	5.0	6.5
August 20-24	†	†	3.5	3.0	9.0	11.0	11.0	10.5	7.0	5.0	9.0
September 16-20	†	†	†	†	†	15.0	14.5	†	†	†	†
October 14-17	†	†	†	†	†	†	†	†	†	†	†
December 9-13	†	†	†	†	†	†	†	†	†	†	†

APPENDIX B-2

Means and ranges of on-site physical and chemical measurements

[Water temperature, specific conductance, oxidation-reduction potential, dissolved oxygen, and pH]

Page

Means and ranges of on-site physical and chemical measurements at Chattahoochee River stations in West Point Reservoir, April 197[illegible]-December 1979

[Stations in downstream order from Franklin, Ga., to West Point Dam. N, number of samples; +, station not established; U, above the thermocline; L, below the thermocline; T, entire water column; #, not applicable]

		Sampling station								
		CH-12			CH-11A			CH-10		
		N	Range	Mean	N	Range	Mean	N	Range	Mean
					Unstratified periods					
Water temperature (°C)	T	9	6.5-20.5	15.3	25	11.8-20.7	16.9	82	6.2-23.9	16.4
Specific conductance (umhos/cm)	T	9	46-90	68	25	49-78	68	82	49-96	66
Oxidation-reduction potential (mV)	T	9	495-645	590	25	460-650	585	82	445-665	563
Dissolved oxygen (mg/L)	T	9	6.9-11.2	8.5	25	5.3-9.3	7.5	82	2.6-11.4	7.8
pH (units)	T	9	6.2-6.8	6.4	25	5.8-6.5	6.1	82	5.5-8.4	6.1
					1978 stratified period					
Water temperature (°C)	U	5	18.7-28.9	23.6	+	+	+	17	25.0-29.5	27.6
	L	#	#	#	#	#	#	22	18.6-26.4	22.2
Specific conductance (umhos/cm)	U	5	63-96	75	+	+	+	17	57-104	82
	L	#	#	#	#	#	#	22	56-120	74
Oxidation-reduction potential (mV)	U	4	480-590	550	+	+	+	17	445-580	505
	L	#	#	#	#	#	#	22	155-580	515
Dissolved oxygen (mg/L)	U	5	4.7-7.8	6.7	+	+	+	17	1.0-12.6	7.2
	L	#	#	#	#	#	#	22	.1-6.1	3.6
pH (units)	U	5	6.4-6.[illegible]	6.5	+	+	+	17	6.2-9.3	6.8
	L	#	#	#	#	#	#	22	6.0-7.0	6.3
					1979 stratified period					
Water temperature (°C)	U	3	23.3-26.8	25.4	20	2[illegible].7-28.5	26.2	6	25.8-30.2	27.7
	L	#	#	#	#	#	#	14	24.4-26.3	25.2
Specific conductance (umhos/cm)	U	3	67-97	78	20	71-82	76	6	70-83	75
	L	#	#	#	#	#	#	14	64-77	71
Oxidation-reduction potential (mV)	U	3	455-615	545	20	495-620	570	6	350-550	450
	L	#	#	#	#	#	#	14	415-600	520
Dissolved oxygen (mg/L)	U	3	5.4-6.7	5.9	20	4.8-7.1	5.5	6	5.5-11.7	9.1
	L	#	#	#	#	#	#	14	2.1-5.0	3.7
pH (units)	U	3	6.3-6.8	6.5	20	6.1-6.8	6.4	6	6.9-9.2	7.3
	L	#	#	#	#	#	#	14	6.1-6.5	6.2

Means and ranges of on-site physical and chemical measurements at Chattahoochee River stations in West Point Reservoir, April 1978-December 1979--Continued

[Stations in downstream order from Franklin, Ga., to West Point Dam. N, number of samples; +, station not established; U, above the thermocline; L, below the thermocline; T, entire water column; #, not applicable]

		Sampling station								
		CH-07			CH-05A			CH-03		
		N	Range	Mean	N	Range	Mean	N	Range	Mean
					Unstratified periods					
Water temperature (°C)----	T	72	6.7-23.8	15.2	84	6.6-24.4	16.1	82	6.8-25.4	16.7
Specific conductance (umhos/cm)---------------	T	72	48-94	69	84	47-83	66	82	44-80	64
Oxidation-reduction potential (mV)-----------	T	72	450-665	585	84	260-655	580	82	370-670	590
Dissolved oxygen (mg/L)---	T	72	5.4-12.6	7.5	84	.7-12.2	7.4	82	.7-11.2	6.9
pH (units)---------------	T	72	5.5-8.1	6.2	84	5.6-8.0	6.2	82	5.4-7.8	6.1
					1978 stratified period					
Water temperature (°C)----	U	22	19.5-30.5	26.3	24	19.5-29.8	26.8	30	17.4-30.4	25.7
	L	30	12.8-26.3	21.1	36	10.5-26.6	20.6	38	9.9-27.2	19.7
Specific conductance	U	22	57-102	77	24	64-77	71	30	56-72	65
(umhos/cm)--------------	L	30	56-126	74	36	55-112	71	38	54-95	66
Oxidation-reduction	U	22	405-555	485	24	435-560	500	30	340-565	475
potential (mV)-----------	L	30	100-640	535	36	290-650	580	38	235-620	515
Dissolved oxygen (mg/L)---	U	22	.9-13.4	8.0	24	.7-10.4	7.3	30	.1-13.0	6.8
	L	30	.1-5.3	3.1	36	.1-5.2	2.3	38	.1-9.3	2.3
pH (units)---------------	U	22	6.1-9.4	6.7	24	5.9-9.1	6.6	30	6.1-9.8	6.7
	L	30	5.7-6.9	6.2	36	5.6-6.9	6.0	38	5.4-7.2	6.0
					1979 stratified period					
Water temperature (°C)----	U	13	22.7-26.9	25.6	19	23.1-29.2	26.9	25	23.1-29.1	26.4
	L	18	19.3-27.3	24.2	17	17.9-25.6	21.9	15	19.8-24.9	21.9
Specific conductance	U	13	59-77	70	19	59-77	72	25	56-71	61
(umhos/cm)---------------	L	18	60-77	72	17	58-92	71	15	58-102	77
Oxodiation-reduction	U	13	370-600	545	19	425-595	485	25	425-560	490
potential (mV)-----------	L	18	270-615	520	17	250-615	465	15	100-615	431
Dissolved oxygen (mg/L)---	U	13	4.7-9.7	7.0	19	1.5-9.2	6.0	25	.6-9.0	6.3
	L	18	.1-4.3	2.3	17	.1-2.8	.7	15	.1-3.3	.8
pH (units)---------------	U	13	5.9-8.5	6.3	19	6.1-8.6	6.6	25	6.1-8.7	6.8
	L	18	5.6-6.4	5.9	17	5.6-6.2	5.8	15	5.4-7.4	5.9

Means and ranges of on-site physical and chemical measurements at tributary stations in West Point Reservoir, April 1978-December 1979

[N, number of samples; +, station not established; U, above the thermocline; L, below the thermocline; T, entire water column]

		Sampling station								
		Yellowjacket Creek			Wehadkee Creek					
		CH-08			CH-04			CH-13		
		N	Range	Mean	N	Range	Mean	N	Range	Mean
					Unstratified periods					
Water temperature (°C)----	T	42	6.2-24.1	15.3	39	6.0-24.5	16.1	75	6.3-24.5	15.9
Specific conductance (umhos/cm)---------------	T	42	50-185	68	39	30-52	44	75	38-126	62
Oxidation-reduction potential (mV)-----------	T	42	105-640	555	39	535-690	595	75	150-670	575
Dissolved oxygen (mg/L)---	T	42	.6-10.6	6.7	39	1.4-11.0	7.2	75	.1-11.2	6.8
pH (units)----------------	T	42	6.0-7.0	6.4	39	5.4-7.2	6.1	75	5.4-8.2	6.2
					1978 stratified period					
Water temperature (°C)----	U	28	13.2-30.6	24.5	+	+	+	36	14.0-30.3	2[illegible].9
	L	28	11.7-27.3	22.1	+	+	+	34	8.4-25.7	16.3
Specific conductance (umhos/cm)---------------	U	28	55-82	66	+	+	+	36	50-76	64
	L	28	62-230	94	+	+	+	34	[illegible]-140	65
Oxidation-reduction potential (mV)-----------	U	28	435-575	490	+	+	+	36	370-570	470
	L	28	95-605	410	+	+	+	34	140-620	465
Dissolved oxygen (mg/L)---	U	28	.2-12.7	6.6	+	+	+	36	.1-11.2	6.8
	L	28	.1-5.3	.9	+	+	+	34	.1-7.8	1.7
pH (units)----------------	U	28	5.4-9.2	6.3	+	+	+	36	5.7-9.5	6.6
	L	28	6.0-6.8	6.3	+	+	+	34	5.4-7.0	6.[illegible]
					1979 stratified period					
Water temperature (°C)----	U	27	11.9-29.8	23.1	10	26.0-30.9	27.9	23	20.2-30.7	26.0
	L	20	9.1-26.1	18.5	12	19.0-27.2	2[illegible].8	17	16.3-26.2	22.0
Specific conductance (umhos/cm)---------------	U	27	37-76	57	10	41-52	50	23	52-73	62
	L	20	48-154	86	12	45-106	65	17	48-106	70
Oxidation-reduction potential (mV)-----------	U	27	380-660	540	10	370-605	485	23	375-640	520
	L	20	50-690	350	12	75-635	310	17	70-600	265
Dissolved oxygen (mg/L)---	U	27	1.3-10.9	6.4	10	2.7-8.2	6.9	23	.7-9.0	6.2
	L	20	.1-6.6	.8	12	.1-5.2	.8	17	.1-1.6	.4
pH (units)----------------	U	27	5.3-8.8	6.1	10	6.2-7.9	6.9	23	5.5-8.4	6.3
	L	20	5.2-6.2	5.8	12	5.8-6.4	6.1	17	5.4-[illegible].5	5.9

Means and ranges of on-site physical and chemical measurements near the inundated coffer structure upstream from West Point Dam, April 1978-December 1979

[Stations presented in downstream order. N, number of samples; U, above the thermocline; L, below the thermocline; T, entire water column]

		Sampling station								
		CH-03A			CH-03B			CH-03C		
		N	Range	Mean	N	Range	Mean	N	Range	Mean
Unstratified periods										
Water temperature (°C)	T	85	6.6-20.9	14.7	86	6.8-21.2	14.9	82	6.8-25.4	16.7
Specific conductance (umhos/cm)	T	85	44-78	63	86	44-77	63	82	44-80	64
Oxidation-reduction potential (mV)	T	85	440-670	585	86	445-675	575	82	370-670	590
Dissolved oxygen (mg/L)	T	85	2.3-12.0	6.9	86	1.0-12.3	7.2	82	.7-11.3	6.9
pH (units)	T	85	5.3-8.3	6.0	86	5.3-8.4	6.1	82	5.4-7.8	6.1
1978 stratified period										
Water temperature (°C)	U	28	19.5-29.9	26.4	28	19.5-30	26.4	30	17.4-30.4	25.7
	L	30	15.7-27.5	21.4	30	16.0-27.3	21.4	38	9.9-27.2	19.7
Specific conductance (umhos/cm)	U	28	57-73	65	28	56-70	65	30	56-72	65
	L	30	54-80	65	30	54-80	66	38	54-95	66
Oxidation-reduction potential (mV)	U	28	365-600	500	28	360-605	490	30	340-565	475
	L	30	240-610	535	30	240-640	535	38	235-620	515
Dissolved oxygen (mg/L)	U	28	.1-8.5	6.1	28	.1-9.0	6.2	30	.1-13.0	6.8
	L	30	.1-5.8	1.4	30	.0-6.6	1.4	38	.1-9.3	2.3
pH (units)	U	28	5.9-9.0	6.6	28	6.1-9.0	6.7	30	6.1-9.8	6.7
	L	30	5.5-6.9	6.0	30	5.6-6.8	6.0	38	5.4-7.2	6.0
1979 stratified period										
Water temperature (°C)	U	32	22.3-30.3	26.1	34	21.8-30.5	26.0	25	23.1-29.1	26.4
	L	26	17.3-25.8	21.4	23	17.1-25.9	21.3	15	19.8-24.9	21.9
Specific conductance (umhos/cm)	U	32	56-73	64	34	55-74	64	25	56-71	61
	L	26	61-116	80	23	58-106	78	15	58-102	77
Oxidation-reduction potential (mV)	U	32	315-570	475	34	415-585	505	25	425-560	490
	L	26	80-610	325	23	60-610	360	15	100-615	430
Dissolved oxygen (mg/L)	U	32	.7-8.3	5.4	34	.1-8.8	5.6	25	.6-9.0	6.3
	L	26	.1-2.6	.5	23	.1-2.5	.5	15	.1-3.3	.8
pH (units)	U	32	5.8-8.6	6.8	34	5.8-8.5	6.7	25	6.1-8.7	6.8
	L	26	5.4-7.0	5.9	23	5.4-6.8	5.8	15	5.4-7.4	5.9

Means and ranges of on-site physical and chemical measurements at stations on the Chattahoochee River downstream from West Point Dam, April 1978-December 1979

[Stations presented in downstream order from West Point Dam to Langdale, Ala. N, number of samples; H, maximum release period; L, minimum release period]

		Sampling station														
		CH-2.5B			CH-01A			CH-01B			CH-01C			CH-01D		
		N	Range	Mean	N	Range	Mean	N	Range	Mean	N	Range	Mean	N	Range	Mean
Unstratified periods																
Water temperature (°C)	H	8	6.9-24.9	16.1	8	7.0-25.0	16.2	8	7.0-24.8	16.2	8	7.1-24.8	16.1	8	7.2-24.7	16.1
	L	8	12.3-25.7	17.9	8	11.8-25.5	17.8	8	11.8-25.1	17.8	8	11.4-24.4	17.7	8	11.3-24.6	17.6
Specific conductance potential (umhos/cm)	H	8	44-78	66	8	44-74	64	8	44-77	64	8	45-75	65	8	45-75	65
	L	8	45-75	62	8	45-73	62	8	46-72	61	8	53-75	66	8	50-77	67
Oxidation-reduction potential (mV)	H	8	425-650	560	8	510-615	565	8	540-610	570	8	515-630	565	8	530-605	565
	L	8	515-675	575	8	540-665	570	8	540-640	570	8	500-650	570	8	510-650	575
Dissolved oxygen (mg/L)	H	8	4.8-9.9	7.2	8	5.0-10.0	7.3	8	5.3-10.1	7.4	8	5.1-10.1	7.4	8	85.2-10.2	7.5
	L	8	4.6-11.1	7.7	8	6.2-10.0	8.1	8	5.9-10.6	8.2	8	6.0-11.0	8.2	8	6.1-10.2	8.1
pH (units)	H	8	6.0-7.2	6.5	8	6.1-6.8	6.4	8	6.1-6.7	6.5	8	6.1-6.7	6.4	8	6.1-6.8	6.5
	L	8	5.9-8.1	6.3	8	6.0-7.1	6.4	8	5.9-7.1	6.4	8	6.0-7.2	6.5	8	6.0-6.9	6.4
1978 stratified period																
Water temperature (°C)	H	5	16.1-26.8	22.5	4	16.1-26.0	22.0	5	15.8-26.0	21.9	5	15.5-26.5	22.6	5	15.6-26.0	22.7
	L	5	16.9-27.7	24.2	5	20.6-28.0	24.9	5	21.1-29.2	25.7	5	20.5-29.0	25.3	5	20.4-28.9	25.2
Specific conductance potential (umhos/cm)	H	5	51-72	63	4	53-68	63	5	54-74	63	5	54-74	63	5	53-75	65
	L	5	53-76	63	5	54-68	61	5	55-67	62	5	58-71	65	5	59-76	67
Oxidation-reduction potential (mV)	H	5	380-540	470	4	380-555	465	5	385-555	485	5	480-570	505	5	480-580	510
	L	4	330-560	410	5	330-585	480	5	465-575	530	4	460-570	530	4	470-570	535
Dissolved oxygen (mg/L)	H	5	2.3-6.1	3.5	4	2.0-6.3	3.3	5	2.1-6.0	3.3	5	2.3-5.7	3.8	5	2.5-6.0	3.8
	L	5	4.2-8.9	5.5	5	2.2-8.3	5.8	5	2.2-8.1	5.6	5	2.8-8.8	5.7	5	4.9-8.0	6.0
pH (units)	H	5	6.1-6.6	6.3	4	5.5-6.6	5.8	5	5.6-6.4	6.1	5	6.0-6.6	6.2	5	5.9-6.5	6.1
	L	4	6.7-7.0	6.8	5	5.4-7.0	6.0	5	6 0-7.0	6.5	4	6.8-6.9	6.8	4	6.0-7.0	6.8
1979 stratified period																
Water temperature (°C)	H	3	23.0-25.6	24.0	3	22.8-26.0	24.3	3	22.8-26.2	24.0	3	22.9-26.3	24.4	3	23.0-27.0	25.5
	L	3	25.3-25.5	25.4	4	23.0-25.7	24.8	3	22.8-26.7	24.9	3	23.5-25.0	24.2	3	24.4-25.0	24.7
Specific conductance potential (umhos/cm)	H	3	53-70	64	3	54-69	64	3	54-68	63	3	56-74	65	3	55-68	62
	L	3	53-73	62	4	55-75	62	3	56-66	60	3	54-85	73	3	63-79	69
Oxidation-reduction potential (mV)	H	3	190-470	375	3	205-540	415	3	225-530	425	3	245-620	470	3	235-630	470
	L	3	270-600	42[illegible]	3	235-570	440	3	250-565	440	3	290-560	470	3	390-530	465
Dissolved oxygen (mg/L)	H	3	2.1-5.3	3.5	3	2.2-5.6	3.7	3	2.2-5.5	3.7	3	2.9-5.8	4.1	3	3.6-5.8	4.9
	L	3	3.1-7.5	5.2	4	3.2-7.3	5.3	3	4.1-7.3	5.8	3	3.2-7.6	5.6	3	3.2-8.2	5.3
pH (units)	H	3	6.3-6.6	6.4	3	6.1-6.6	6.3	3	6.2-6.7	6.4	3	5.7-6.5	6.0	3	5.6-6.6	6.0
	L	3	6.3-6.4	6.3	4	6.5-6.7	6.6	3	6.5-6.8	6.6	3	6.2-6.8	6.4	3	6.4-7.0	6.6

APPENDIX B-3

Means and ranges of optical characteristics

[Euphotic depth, Secchi disc visibility, color, and turbidity]

Means and ranges of optical characteristics at Chattahoochee River stations in West Point Reservoir, April 1978-December 1979

[U, above the thermocline; L, below the thermocline; T, entire water column; +, station not established; *, analysis not required; #, not applicable]

		Sampling station								
		CH-12			CH-11A			CH-10		
		N	Range	Mean	N	Range	Mean	N	Range	Mean
					Unstratified periods					
Euphotic depth (m)---------------		*	*	*	3	2.0-2.0	2.0	9	1.0-2.5	1.9
Secchi-disc visibility (m)-------		3	0.2-0.7	0.4	5	.3-.7	.6	10	.2-.8	.6
Color (platinum-cobalt units)----	T	6	5.0-50	21	*	*	*	31	.0-60	18
Turbidity (NTU)------------------	T	9	10-65	26	14	10-35	19	40	2.0-90	27
					1978 stratified period					
Euphotic depth (m)---------------		*	*	*	+	+	+	3	2.0-3.0	2.7
Secchi-disc visibility (m)-------		*	*	*	+	+	+	4	.7-1.1	.9
Color (platinum-cobalt units)----	U	5	2.0-4.0	28	+	+	+	10	8.0-50	20
	L	#	#	#	#	#	#	10	8.0-180	62
Turbidity (NTU)------------------	U	5	7.0-40	22	+	+	+	10	2.0-10	5.3
	L	#	#	#	#	#	#	10	6.0-60	31
					1979 stratified period					
Euphotic depth (m)---------------		*	*	*	3	1.0-2.0	1.5	4	2.5-3.0	2.8
Secchi-disc visibility (m)-------		3	0.4-.65	0.70	3	.30-.45	.38	2	.8-.8	.8
Color (platinum-cobalt units)----	U	3	15-20	17	*	*	*	4	5.0-2.0	9.2
	L	#	#	#	#	#	#	6	5.0-55	39
Turbidity (NTU)------------------	U	3	20-30	27	11	10-45	23	4	3.0-8.0	4.1
	L	#	#	#	#	#	#	6	[illegible]	2[illegible]

Means and ranges of optical characteristics at Chattahoochee River stations in West Point Reservoir, April 1978-December 1979--Continued

[U, above the thermocline; L, below the thermocline; T, entire water column; +, station not established; *, analysis not required; #, not applicable]

		Sampling station								
		CH-07			CH-05A			CH-03C		
		N	Range	Mean	N	Range	Mean	N	Range	Mean
					Unstratified periods					
Euphotic depth (m)---------------		6	1.0-2.0	1.8	6	1.5-4.0	2.4	5	1.5-3.0	2.4
Secchi-disc visibility (m)-------		9	.15-.90	.59	8	.40-1.1	.78	6	.3-1.5	.92
Color (platinum-cobalt units)----	T	16	5.0-30	[illegible]	21	2.0-80	18	22	5.0-80	18
Turbidity (NTU)------------------	T	30	4.0-90	33	30	1.0-40	20	31	2.0-40	13
					1978 stratified period					
Euphotic depth (m)---------------		5	2.5-4.0	3.0	5	3.0-4.0	3.5	6	2.0-6.0	4.2
Secchi-disc visibility (m)-------		5	1.0-1.6	1.2	5	1.0-1.3	1.2	6	1.0-1.9	1.4
Color (platinum-cobalt units)----	U	14	8.0-20	15	14	5.0-30	15	18	2.0-30	16
	L	11	8.0-65	30	10	8.0-200	70	12	8.0-50	30
Turbidity (NTU)------------------	U	14	1.0-6.0	2.8	14	2.0-5.0	2.9	18	1.0-6.0	3.1
	L	11	2.0-70	21	12	3.0-45	18	12	2.0-15	6.9
					1979 stratified period					
Euphotic depth (m)---------------		6	2.0-4.0	3.2	6	2.3-4.0	3.6	6	4.0-6.0	5.1
Secchi-disc visibility (m)-------		3	.70-1.0	.90	3	1.0-1.2	1.1	3	1.4-1.7	1.5
Color (platinum-cobalt units)----	U	8	5.0-50	12	10	5.0-10	7.2	12	.0-5.0	4.2
	L	7	10-45	31	4	15-45	30	6	2.0-100	39
Turbidity (NTU)------------------	U	8	3.0-15	5.9	10	2.0-10	4.6	12	1.0-2.0	1.7
	L	7	2.0-25	18	4	'5-15	15	6	3.0-7.0	5.8

Means and ranges of optical characteristics at tributary stations in West Point Reservoir, April 1978-December 1979

[U, above the thermocline; L, below the thermocline; T, entire water column; +, station not established; *, analysis not required]

		Sampling station								
		Yellowjacket Creek			Wehadkee Creek					
		CH-08			CH-04			CH-13		
		N	Range	Mean	N	Range	Mean	N	Range	Mean
					Unstratified periods					
Euphotic depth (m)---------------		3	2-2	2	4	1-2	1.6	5	1.5-.3	2.5
Secchi-disc visibility (m)-------		6	.7-1.2	1.0	8	.35-1.0	.7	8	.5-1.8	1.1
Color (platinum-cobalt units)----	T	9	5-150	23.8	*	*	*	16	5-50	6
Turbidity (NTU)------------------	T	17	2-25	10	18	3-40	16	25	1-25	14
					1978 stratified period					
Euphotic depth (m)---------------		3	3-3	3	+	+	+	6	3-4	3.6
Secchi-disc visibility (m)-------		4	1.0-1.2	1.1	+	+	+	5	1.0-1.3	1.2
Color (platinum-cobalt units)----	U	18	8-30	20	+	+	+	17	8-20	11.9
	L	9	20-400	132	+	+	+	10	8-95	42
Turbidity (NTU)------------------	U	18	1-7	3.4	+	+	+	17	1-6	3.2
	L	9	1-50	18	+	+	+	10	1-30	15
					1979 stratified period					
Euphotic depth (m)---------------		5	1.3-4	2.6	3	4-5	4.3	3	3-5	4.3
Secchi-disc visibility (m)-------		5	.4-1.1	.8	3	1.3-1.6	1.4	3	.95-1.4	1.3
Color (platinum-cobalt units)----	U	14	5-100	27	*	*	*	11	0-5	3.9
	L	8	5-300	11[illegible]	*	*	*	4	5-150	68
Turbidity (NTU)------------------	U	14	2-35	13	8	2-5	4	11	2-6	[illegible].6
	L	8	3-45	28	4	2-15	8	4	1-9	5.6

Means and ranges of optical characteristics at stations on the Chattahoochee River downstream from West Point Dam, April 1978-December 1979

[H, maximum release; L, minimum release; *, analysis not required]

		Sampling station														
		CH-2.5B			CH-01A			CH-01B			CH-01C			CH-01D		
		N	Range	Mean	N	Range	Mean	N	Range	Mean	N	Range	Mean	N	Range	Mean
Unstratified periods																
Euphotic depth (m)		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Secchi disc visibility (m)		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Color (platinum-cobalt units)	H	6	5-55	21	6	5-45	18	7	5-60	20	6	5-80	26	6	5-50	22
	L	5	10-70	26	5	5-60	28	5	5-70	33	5	5-70	27	5	5-70	31
Turbidity (NTU)	H	8	1-30	10	7	2-30	9	8	2-30	10	8	2-35	11	8	1-35	11
	L	8	2-35	10	8	3-35	10	8	3-35	11	7	3-30	11	8	2-35	15
1978 stratified period																
Euphotic depth (m)		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Secchi disc visibility (m)		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Color (platinum-cobalt units)	H	5	15-45	28	5	10-50	28	5	15-40	25	5	15-45	26	5	15-45	26
	L	5	20-45	30	4	10-30	23	5	20-30	26	5	10-30	22	5	10-30	20
Turbidity (NTU)	H	5	3-25	8	5	1-8	4.6	5	2-10	4.4	5	2-8	4.4	5	3-10	6
	L	5	2-7	4	4	4-15	7	5	3-15	6.2	5	3-10	5	5	3-10	5.8
1979 stratified period																
Euphotic depth (m)		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Secchi disc visibility (m)		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Color (platinum-cobalt units)	H	3	8-40	19	3	10-35	20	3	10-25	17	3	15-20	18	3	10-60	30
	L	3	10-30	20	3	5-25	13	3	10-25	18	3	10-25	17	3	10-15	12
Turbidity (NTU)	H	3	2-7	5	3	5-5	5	3	4-6	4.7	3	3-10	6	3	4-20	15
	L	3	4-5	4.3	3	4-6	4.7	3	4-5	4.3	3	5-6	5.7	3	5-15	8.3

APPENDIX B-4

Means and ranges of chemical concentrations

[Residue, nonfilterable total; residue, filterable, total; alkalinity; carbon dioxide; bicarbonate; sulfur, sulfate, dissolved; sulfur, sulfide, total]

Page

Means and ranges of chemical concentrations at Chattahoochee River stations in West Point Reservoir, April 1978-December 1979

[N, number of samples; U, above the thermocline; L, below the thermocline; T, entire water column; +, station not established; *, analysis not required; #, not applicable. Results in milligrams per liter]

		Sampling station								
		CH-12			CH-11A			CH-10		
		N	Range	Mean	N	Range	Mean	N	Range	Mean
Unstratified periods										
Residue, nonfilterable, total----	T	9	14-90	40	*	*	*	40	0-101	25
Residue, filterable, total-------	T	9	38-66	50	*	*	*	40	40-65	47
Alkalinity----------------------	T	9	8-20	13	*	9-18	*	40	8-41	13
Carbon dioxide------------------	T	9	2.5-17.0	10.0	14	6.8-39.0	17.5	40	.1-99	23
Bicarbonate---------------------	T	4	10-19	15	*	*	*	19	11-50	17
Sulfur, sulfate, dissolved-------	T	9	2.9-8.8	6.6	*	*	*	40	4.0-7.7	6.0
Sulfur, sulfide, total-----------	T	9	.0-.0	.0	*	*	*	41	.0-.2	.03
1978 stratified period										
Residue, nonfilterable, total----	U	5	6-63	35	+	+	+	10	0-13	4
	L	#	#	#	#	#	#	10	1.0-88	33
Residue, filterable, total-------	U	5	44-62	54	+	+	+	10	45-91	55
	L	#	#	#	#	#	#	10	12-70	45
Alkalinity----------------------	U	5	11-17	14	+	+	+	10	15-28	18
	L	#	#	#	#	#	#	10	9-26	17
Carbon dioxide------------------	U	5	6.4-11	7.9	+	+	+	10	0-20	3
	L	#	#	#	#	#	#	10	3.4-29	15
Bicarbonate---------------------	U	5	13-21	18	+	+	+	10	18-32	22
	L	#	#	#	#	#	#	10	11-32	21
Sulfur, sulfate, dissolved-------	U	5	5.6-9.9	8.2	+	+	+	10	6.8-11	7.9
	L	#	#	#	#	#	#	10	5.5-10	6.7
Sulfur, sulfide, total-----------	U	5	.0-.0	.0	+	+	+	10	.0-.0	.0
	L	#	#	#	#	#	#	10	.0-.0	.0
1979 stratified period										
Residue, nonfilterable, total----	U	3	44-52	47	*	*	*	4	2-8	4
	L	#	#	#	#	#	#	6	4-41	25
Residue, filterable, total-------	U	3	50-62	55	*	*	*	4	48-54	48
	L	#	#	#	#	#	#	6	46-56	52
Alkalinity----------------------	U	3	11-20	16	11	12-18	16	4	17-31	22
	L	#	#	#	#	#	#	6	12-18	15
Carbon dioxide------------------	U	3	6.2-11.0	8.3	11	4.9-20.0	12.1	4	.0-2.2	.5
	L	#	#	#	#	#	#	6	11-26	21
Bicarbonate---------------------	U	3	*	*	*	*	*	*	*	*
	L	#	#	#	#	#	#	*	*	*
Sulfur, sulfate, dissolved-------	U	3	5.1-9.8	7.2	*	*	*	4	7.0-8.0	7.0
	L	#	#	#	#	#	#	6	6.7-8.8	7.4
Sulfur, sulfide, total-----------	U	3	.0-.0	.0	*	*	*	4	.0-.0	.0
	L	#	#	#	#	#	#	6	.0-.0	.0

Means and ranges of chemical concentrations at Chattahoochee River stations in West Point Reservoir, April 1978-December 1979--Continued

[N, number of samples; U, above the thermocline; L, below the thermocline; T, entire water column; +, station not established; *, analysis not required; #, not applicable. Results in milligrams per liter]

		Sampling station								
		CH-07			CH-05A			CH-03C		
		N	Range	Mean	N	Range	Mean	N	Range	Mean
					Unstratified periods					
Residue, nonfilterable, total----	T	30	0-103	32	30	0-37	16	31	0-31	12
Residue, filterable, total-------	T	30	36-54	48	29	31-57	47	31	36-90	53
Alkalinity----------------------	T	30	8-19	13	30	6-21	13	31	7-23	14
Carbon dioxide------------------	T	30	.3-99	16	30	.2-59	17	31	0.2-59	25
Bicarbonate---------------------	T	14	10-23	16	14	7-23	17	9	14-25	19
Sulfur, sulfate, dissolved-------	T	30	4.2-9.4	7.1	30	3.8-12	6.9	31	3.6-9.0	6.4
Sulfur, sulfide, total-----------	T	30	.0-.1	.00	30	.0-.0	.0	31	.0-.0	.0
					1978 stratified period					
Residue, nonfilterable, total----	U	14	0-13	5	14	0-8	4	18	0-20	3
	L	11	.0-109	29	11	2.0-34	17	12	0-11	5
Residue, filterable, total-------	U	14	43-71	54	14	44-56	48	18	22-71	48
	L	11	46-66	53	11	44-74	52	12	40-65	53
Alkalinity----------------------	U	14	8-27	17	14	14-33	19	18	11-28	18
	L	11	10-22	15	11	11-36	18	12	8-27	16
Carbon dioxide------------------	U	14	0-23	4	14	0-40	8	18	0-25	4
	L	11	7.7-51	22	11	8.6-72	26	12	4-56	33
Bicarbonate---------------------	U	14	10-33	20	14	17-36	23	18	13-28	19
	L	11	12-27	13	11	13-14	22	12	10-32	19
Sulfur, sulfate, dissolved-------	U	14	4.9-9.9	6.9	14	4.1-8.0	6.3	18	4.7-7.3	5.9
	L	11	4.3-8.0	6.0	11	4.7-7.3	6.0	12	4.3-7.3	5.6
Sulfur, sulfide, total-----------	U	14	.0-.0	.0	14	.0-.0	.0	18	.0-.0	.0
	L	11	.0-.0	.0	11	.0-.0	.0	12	.0-0.1	.0
					1979 stratified period					
Residue, nonfilterable, total----	U	8	1.0-10	4.6	10	.0-9.0	4.8	12	.0-27	5.6
	L	7	3-32	20	4	10-32	20	6	2-14	8
Residue, filterable, total-------	U	8	44-54	48	10	44-58	50	12	19-52	39
	L	7	42-55	47	4	20-57	44	6	37-64	51
Alkalinity----------------------	U	8	8.0-28	18	10	14-22	18	12	11-21	18
	L	7	8.0-18	12	4	12-19	26	6	8-26	17
Carbon dioxide------------------	U	8	.1-20	6.3	10	.1-33	8.0	12	.1-13	3.1
	L	7	14-55	31	4	22-59	39	6	1.6-62	32
Bicarbonate---------------------	U	*	*	*	*	*	*	*	*	*
	L	*	*	*	*	*	*	*	*	*
Sulfur, sulfate, dissolved-------	U	8	5.1-8.1	6.4	10	5.4-7.5	6.5	12	3.1-5.9	4.5
	L	7	4.8-8.4	6.6	4	4.1-5.8	5.1	6	4.3-5.6	5.0
Sulfur, sulfide, total-----------	U	8	.0-.6	.05	10	.0-.8	.2	12	.0-.0	.0
	L	7	.0-.3	.01	4	.0-.3	.02	6	.0-.0	.0

Means and ranges of chemical concentrations at tributary stations in West Point Reservoir, April 1978-December 1979

[N, number of samples; U, above the thermocline; L, below the thermocline; T, entire water column; +, station not established; *, analysis not required. Results in milligrams per liter]

		Sampling station								
		Yellowjacket Creek			Wehadkee Creek					
		CH-08			CH-04			CH-13		
		N	Range	Mean	N	Range	Mean	N	Range	Mean
		Unstratified periods								
Residue, nonfilterable, total----	T	17	0.0-29	14	2	17-19	2	25	1.0-34	18
Residue, filterable, total-------	T	17	45-87	52	2	53-64	54	25	32-54	47
Alkalinity-----------------------	T	17	8.0-29	15	18	7-27	15	25	8.0-21	14
Carbon dioxide-------------------	T	15	3.4-28	12	18	2.6-49	20	25	.1-94	28
Bicarbonate----------------------	T	8	15-24	20	2	19-23	19	9	13-25	18
Sulfur, sulfate, dissolved-------	T	17	2.0-6.8	5.6	2	2.4-3.0	.35	25	3.2-8.0	5.9
Sulfur, sulfide, total-----------	T	17	.0-.0	.0	*	*	*	25	.0-.0	.0
		1978 stratified period								
Residue, nonfilterable, total----	U	18	0.0-9.0	4.7	+	+	+	17	0.0-7.0	2.1
	L	9	.0-36	12	+	+	+	10	.0-15	7
Residue, filterable, total-------	U	18	39-96	52	+	+	+	17	25-100	44
	L	9	33-109	61	+	+	+	10	37-103	57
Alkalinity-----------------------	U	18	13-26	18	+	+	+	17	6.0-23	16
	L	9	11-52	25	+	+	+	10	10-27	19
Carbon dioxide-------------------	U	18	.0-25	2.6	+	+	+	17	.0-18	2.5
	L	9	11-32	18	+	+	+	10	12-106	33
Bicarbonate----------------------	U	18	15-27	22	+	+	+	17	7-28	19
	L	9	14-63	31	+	+	+	10	12-33	23
Sulfur, sulfate, dissolved-------	U	18	3.9-11	5.4	+	+	+	17	5.2-10	6.2
	L	9	2.3-9.5	5.5	+	+	+	10	2.8-7.2	5.0
Sulfur, sulfide, total-----------	U	18	.0-.0	.0	+	+	+	17	.0-.2	.02
	L	9	.0-.0	.0	+	+	+	10	.0-.0	.0
		1979 stratified period								
Residue, nonfilterable, total----	U	14	0.0-25	10.1	*	*	*	11	0.0-12	3.3
	L	8	4.0-41	24	*	*	*	4	.0-7.0	4.0
Residue, filterable, total-------	U	14	37-52	41	*	*	*	11	37-56	44
	L	8	39-82	55	*	*	*	4	34-58	46
Alkalinity-----------------------	U	14	7.0-21	15	8	11-21	14	11	12-21	17
	L	8	9.0-46	23	4	12-30	20	4	8.0-29	19
Carbon dioxide-------------------	U	14	.0-44	6.3	8	.2-21	2.6	11	.1-37	6.0
	L	8	14-180	62	4	9.8-92	53	4	16-50	35
Sulfur, sulfate, dissolved-------	U	14	2.5-6.0	4.2	*	*	*	11	3.4-8.8	5.3
	L	8	2.2-4.9	3.7	*	*	*	4	2.1-4.4	2.9
Sulfur, sulfide, total-----------	U	14	.0-.8	.1	*	*	*	11	.0-.0	.0
	L	8	.0-.0	.0	*	*	*	4	.0-.0	.0

Means and ranges of chemical concentrations in the Chattahoochee River downstream from West Point Dam, April 1978-December 1979

[N, number of samples; H, maximum release; L, minimum release. Results in milligrams per liter]

		CH-2.5B			CH-01A			CH-01B			CH-01C			CH-01D		
		N	Range	Mean	N	Range	Mean	N	Range	Mean	N	Range	Mean	N	Range	Mean
Unstratified periods																
Residue, nonfil-	H	8	0-32	13	8	1-28	12	8	6-27	14	8	7-47	22	8	9-33	18
terable, total-	L	8	1-20	7	7	0-14	6	8	0-21	7	8	0-20	9	8	0-16	6
Residue, filter-	H	8	34-54	47	8	32-51	46	8	32-51	46	8	32-54	47	8	36-53	47
able, total----	L	8	33-62	50	7	40-56	49	6	34-58	47	8	37-54	49	8	35-60	50
Alkalinity------	H	8	10-26	16	8	10-19	14	8	8-26	14	7	8-25	14	8	10-26	15
	L	8	9-19	14	7	9-19	14	8	10-18	13	8	7-24	15	8	11-17	15
Carbon di-	H	8	2-22	10	8	3.3-19	9.2	8	4.7-13	8.0	7	4-15	8.2	8	5-17	8.6
oxide----------	L	8	.3-44	15	7	2.5-24	10	8	1.8-25	9.7	8	1-27	11	6	4-22	9.0
Bicarbonate-----	H	3	18-22	19	3	13-20	17	3	15-17	16	3	10-19	16	3	18-20	19
	L	3	13-20	17	2	20-23	22	3	14-21	17	3	9-20	15	3	14-20	18
Sulfur, sulfate,	H	8	4.6-8.9	6.6	8	4.3-8.7	6.4	8	4.6-8.5	6.4	8	5.1-8.2	6.3	8	4.3-8.7	6.2
dissolved------	L	8	4.4-7.0	6.2	7	3.2-6.8	5.6	8	3.9-6.5	5.9	8	5.0-7.0	6.2	8	4.6-7.0	6.3
Sulfur, sulfide,	H	8	0-0	0	8	0-0	0	8	0-0	0	7	0-0	0	8	0-0	0
total----------	L	8	0-0	0	8	0-0	0	8	0-2.8	.4	8	0-0	0	8	.0-.1	.0
1978 stratified period																
Residue, nonfil-	H	5	0-8	2	5	0-16	7	5	0-12	6	5	0-7.0	3	5	4-13	9
terable, total-	L	5	0-31	10	5	0-12	5	5	0-10	2	5	0-12	4	5	1-12	4
Residue, filter-	H	5	46-101	61	5	42-100	58	5	46-99	59	5	44-107	60	5	46-104	61
able, total----	L	5	42-98	55	5	42-90	54	5	45-102	58	5	50-101	60	5	50-101	61
Alkalinity------	H	5	15-22	18	5	15-21	18	5	12-21	17	5	14-24	17	5	17-24	21
	L	5	14-21	17	5	13-21	17	5	15-22	18	5	17-25	20	5	16-19	17
Carbon di-	H	5	7.2-32	17	5	8-111	39	5	9.6-88	29	5	6.6-32	20	5	15-44	30
oxide----------	L	5	4.0-7.7	5.5	5	3-127	31	5	4.3-34	11	4	5.5-6.1	5.9	4	3.0-8.0	5.6
Bicarbonate-----	H	5	18-27	22	5	19-25	22	5	15-26	21	5	17-29	21	5	21-29	25
	L	5	17-25	21	5	16-25	20	5	18-27	22	5	21-30	24	5	19-23	20
Sulfur, sulfate,	H	5	4.9-7.1	6.1	5	5.1-7.1	6.2	5	4.8-6.9	6.0	5	5.1-7.0	6.1	5	5.1-6.8	6.1
dissolved------	L	5	5.3-7.1	63	5	5.0-6.8	5.9	5	4.5-7.0	5.5	5	5.4-7.2	6.3	5	5.2-7.2	6.2
Sulfur, sulfide,	H	5	0-0	0	5	0-0	0	5	0-0	0	5	0-0	0	5	0-0	0
total---------	L	5	0-0	0	5	0-0	0	5	0-0	0	5	0-0	0	5	0-0	0
1979 stratified period																
Residue, nonfil-	H	3	0-32	11	3	0-16	7	3	0-10	4	3	0-4	2	3	0-25	15
terable, total-	L	3	0-9	4	3	0-5	2	3	0-14	5	3	2-8	5	3	10-18	13
Residue, filter-	H	3	46-56	50	3	44-54	48	3	42-56	47	3	45-54	49	3	41-61	49
able, total----	L	3	41-59	47	3	40-54	46	3	40-52	45	3	46-57	54	3	50-55	53
Alkalinity------	H	3	13-20	17	3	14-21	18	3	16-19	18	3	15-19	18	3	17-21	19
	L	3	15-20	17	4	15-19	18	3	16-19	18	3	17-19	18	3	14-22	16
Carbon di-	H	3	8.8-20	13	3	10-31	17	3	17-24	14	3	12-74	33	3	10-99	41
oxide----------	L	3	12-20	16	3	5.9-12	8.2	3	5.0-12	8.0	3	5.3-21	13.8	3	3.3-14	9.4
Sulfur, sulfate,	H	3	4.3-5.7	4.8	3	4.1-5.4	4.6	3	3.8-5.4	4.5	3	4.0-5.5	4.6	3	4.2-5.8	5.2
dissolved------	L	3	4.0-5.7	4.7	3	3.3-5.3	4.2	3	3.9-5.4	4.4	3	[illegible]	4.9	3	4.3-5.7	[illegible]
Sulfur, sulfide,	H	3	0-0	0	3	.0-.5	.2	3	0-0	0	3	0-0	0	3	0-0	0
total---------	L	3	0-0	0	3	0-0	0	3	0-0	0	3	.0-.6	.2	3	.0-.7	.2

APPENDIX B-5

Means and ranges of nutrient concentrations

[Phosphorus, total; phosphorus, orthophosphate, dissolved; nitrogen, total; nitrogen, nitrite plus nitrate, total; nitrogen, ammonia, total; nitrogen, organic, total; nitrogen, Kjeldahl, total; carbon, organic, total; carbon, organic, dissolved]

Page

Means and ranges of nutrient concentrations at Chattahoochee River stations in West Point Reservoir, April 1978-December 1979

[N, number of samples; U, above the thermocline; L, below the thermocline; T, entire water column; +, station not established; $, deleted because of questionable analytical results; *, analysis not required; #, not applicable. Results in milligrams per liter]

		Sampling station								
		CH-12			CH-11A			CH-10		
		N	Range	Mean	N	Range	Mean	N	Range	Mean
Unstratified periods										
Phosphorus, total	T	9	0.11-0.38	0.27	*	*	*	40	0.06-0.25	0.14
Phosphorus, orthophosphate, dissolved	T	9	.03-.25	.12	14	0.05-.12	0.07	40	.00-.23	.05
Nitrogen, total	T	7	.67-1.7	1.3	*	*	*	33	.69-1.30	1.08
Nitrogen, nitrite plus nitrate, total	T	8	.41-1.0	.74	14	.47-1.0	.67	33	.28-.85	.63
Nitrogen, ammonia, total	T	9	.02-.32	.19	14	.05-.38	.15	40	.00-1.5	.29
Nitrogen, organic, total	T	8	.11-.56	.35	*	*	*	40	.00-1.0	.28
Nitrogen, Kjeldahl, total	T	8	.26-.77	.54	*	*	*	40	.24-1.3	.48
Carbon, organic, total	T	9	2.7-10	4.5	14	1.9-6.6	3.5	38	1.4-10	4.2
Carbon, organic, dissolved	T	9	2.1-4.2	3.1	14	1.5-4.4	2.5	40	1.4-7	3.4
1978 stratified period										
Phosphorus, total	U	5	0.20-0.42	0.27	+	+	+	10	0.01-0.06	0.04
	L	#	#	#	#	#	#	10	.04-.36	.15
Phosphorus, orthophosphate, dissolved	U	5	.08-.28	.15	+	+	+	10	.00-.04	.01
	L	#	#	#	#	#	#	10	.02-.20	.08
Nitrogen, total	U	$	$	$	+	+	+	$	$	$
	L	#	#	#	#	#	#	$	$	$
Nitrogen, nitrite plus nitrate, total	U	$	$	$	+	+	+	$	$	$
	L	#	#	#	#	#	#	$	$	$
Nitrogen, ammonia, total	U	5	.09-.46	.24	+	+	+	10	.00-.29	.05
	L	#	#	#	#	#	#	10	.06-1.8	.64
Nitrogen, organic, total	U	5	.19-.65	.37	+	+	+	10	.45-.75	.57
	L	#	#	#	#	#	#	10	.04-.49	.28
Nitrogen, Kjeldahl, total	U	5	.31-.90	.60	+	+	+	10	.57-.75	.62
	L	#	#	#	#	#	#	10	.25-2.2	.92
Carbon, organic, total	U	5	4.6-17	8.8	+	+	+	10	4.3-14	7.9
	L	#	#	#	#	#	#	10	2.7-11	5.3
Carbon, organic, dissolved	U	5	2.6-4.7	3.6	+	+	+	10	2.4-8.0	5.0
	L	#	#	#	#	#	#	9	1.0-5.2	2.9
1979 stratified period										
Phosphorus, total	U	3	0.23-0.43	0.32	+	+	+	4	0.07-0.09	0.07
	L	#	#	#	#	#	#	6	.10-.20	.15
Phosphorus, orthophosphate, dissolved	U	3	.14-.19	.16	11	0.06-.13	0.09	4	.00-.03	.01
	L	#	#	#	#	#	#	6	.03-.06	.05
Nitrogen, total	U	3	1.1-1.9	1.40	4	1.3-1.5	1.40	4	.52-1.2	.83
	L	#	#	#	#	#	#	6	1.2-1.5	1.27
Nitrogen, nitrite plus nitrate, total	U	3	.81-1.1	.97	11	.7-1.2	1.01	4	.12-.58	.31
	L	#	#	#	#	#	#	6	.57-.87	.72
Nitrogen, ammonia, total	U	3	.10-.29	.17	11	.07-.35	.17	4	.01-.07	.02
	L	#	#	#	#	#	#	6	.20-.41	.30
Nitrogen, organic, total	U	3	.00-.46	.25	4	.43-.98	.46	4	.39-.74	.50
	L	#	#	#	#	#	#	6	.00-.42	.26
Nitrogen, Kjeldahl, total	U	3	.11-.75	.42	4	.55-.67	.60	4	.40-.76	.53
	L	#	#	#	#	#	#	6	.36-.66	.56
Carbon, organic, total	U	3	5.6-11	8.0	10	2.2-6.1	3.7	4	2.7-4.9	3.8
	L	#	#	#	#	#	#	6	2.3-3.8	2.9
Carbon, organic, dissolved	U	3	1.9-6.8	4.1	11	2.0-3.4	2.7	4	2.7-4.9	3.3
	L	#	#	#	#	#	#	6	2.3-3.8	2.6

Means and ranges of nutrient concentrations at Chattahoochee River stations in West Point Reservoir, April 1978-December 1979--Continued

		Sampling station								
		CH-07			CH-05A			CH-03C		
		N	Range	Mean	N	Range	Mean	N	Range	Mean
Unstratified periods										
Phosphorus, total	T	30	0.06-0.36	0.15	30	0.03-0.17	0.11	31	0.01-0.09	0.04
Phosphorus, orthophosphate, dissolved	T	30	.01-.14	.05	30	.00-.11	.05	31	.00-.04	.01
Nitrogen, total	T	25	.63-1.7	1.18	28	.53-1.5	1.09	31	.55-1.4	1.01
Nitrogen, nitrite plus nitrate, total	T	25	.34-.91	.67	28	.29-.99	.60	31	.06-.84	.49
Nitrogen, ammonia, total	T	30	.01-.42	.22	30	.02-.46	.22	31	.01-.36	.19
Nitrogen, organic, total	T	30	.15-.58	.30	30	.06-.48	.25	31	.05-.81	.32
Nitrogen, Kjeldahl, total	T	30	.26-.83	.52	30	.18-.64	.47	31	.24-1.2	.51
Carbon, organic, total	T	29	1.7-12	3.9	30	2.2-9.2	4.2	30	1.8-9.8	4.1
Carbon, organic, dissolved	T	30	1.4-8.7	3.1	29	1.6-8.0	3.3	31	1.6-7.5	3.3
1978 stratified period										
Phosphorus, total	U	14	0.03-0.08	0.05	14	0.02-0.08	0.04	18	0.01-0.05	0.02
	L	11	.06-.39	.13	11	.03-.29	.11	12	.01-.06	.05
Phosphorus, orthophosphate, dissolved	U	14	.00-.05	.02	14	.00-.04	.01	18	.00-.04	.01
	L	11	.01-.17	.06	11	.01-.21	.05	12	.00-.06	.02
Nitrogen, total	U	5	5	5	5	5	5	5	5	5
	L	5	5	5	5	5	5	5	5	5
Nitrogen, nitrite plus nitrate, total	U	5	5	5	5	5	5	5	5	5
	L	5	5	5	5	5	5	5	5	5
Nitrogen, ammonia, total	U	14	.00-.18	.05	14	.00-.12	.04	18	.00-.17	.03
	L	11	.19-1.6	.47	11	.15-1.5	.50	12	.03-.74	.31
Nitrogen, organic, total	U	14	.23-.70	.46	14	.24-1.1	.48	16	.20-1.0	.43
	L	10	.11-.40	.21	11	.20-.73	.36	10	.14-.45	.21
Nitrogen, Kjeldahl, total	U	14	.34-.72	.50	14	.34-1.1	.52	16	.20-1.1	.38
	L	11	.26-2.0	.68	11	.46-1.7	.86	10	.24-1.2	.43
Carbon, organic, total	U	14	3.1-11	6.7	14	1.6-17	6.7	18	1.8-16	6.6
	L	11	1.4-11	7.0	11	2.0-9.2	5.3	12	2.5-17	5.7
Carbon, organic, dissolved	U	14	1.4-10	4.7	14	1.3-9.0	4.7	18	1.7-9.4	4.4
	L	11	1.1-8.2	4.7	11	1.9-8.2	4.1	12	1.7-6.9	3.9
1979 stratified period										
Phosphorus, total	U	8	0.04-0.08	0.06	10	0.02-0.05	0.04	12	0.01-0.03	0.04
	L	7	.03-.11	.08	4	.04-.18	.10	6	.02-.13	.06
Phosphorus, orthophosphate, dissolved	U	8	.00-.04	.02	10	.00-.01	.00	12	.00-.01	.00
	L	7	.00-.05	.03	4	.01-.05	.01	6	.00-.11	.03
Nitrogen, total	U	8	.51-1.7	.95	10	.36-.99	.77	12	.17-.98	.77
	L	7	.98-1.5	1.21	4	.67-1.4	1.10	6	.59-1.2	.93
Nitrogen, nitrite plus nitrate, total	U	8	.12-.63	.40	10	.12-.40	.31	12	.00-.24	.07
	L	7	.41-.73	.59	4	.18-.53	.25	6	.00-.42	.14
Nitrogen, ammonia, total	U	8	.01-.11	.05	10	.01-.41	.08	12	.00-.17	.08
	L	7	.18-.47	.34	4	.23-.86	.59	6	.08-.88	.51
Nitrogen, organic, total	U	8	.35-1.0	.50	10	.17-.57	.39	12	.16-.87	.39
	L	7	.02-.48	.28	4	.22-.34	.27	6	.11-.48	.26
Nitrogen, Kjeldahl, total	U	8	.39-1.1	.56	10	.24-.60	.46	12	.17-.87	.46
	L	7	.34-.80	.62	4	.49-1.2	.87	6	.23-1.2	.78
Carbon, organic, total	U	8	3.2-6.5	4.2	10	3.0-8.9	4.4	12	3.2-5.7	4.6
	L	7	2.7-5.0	3.9	4	1.7-4.2	3.3	6	2.1-5.6	4.0
Carbon, organic, dissolved	U	8	2.3-6.5	3.7	10	2.3-6.5	3.4	12	2.3-4.7	3.4
	L	7	2.3-5.0	3.5	4	2.6-31	2.8	6	2.0-4.2	2.6

Means and ranges of nutrient concentrations at tributary stations in West Point Reservoir, April 1978-December 1979

[N, number of samples; U, above the thermocline; L, below the thermocline; T, entire water column; +, station not established; *, analysis not required; $, deleted because of questionable analytical results. Results in milligrams per liter]

		Sampling station								
		Yellowjacket Creek			Wehadkee Creek					
		CH-08			CH-04			CH-13		
		N	Range	Mean	N	Range	Mean	N	Range	Mean
					Unstratified periods					
Phosphorus, total----------	T	17	0.02-0.14	0.06	*	*	*	25	0.01-0.10	0.06
Phosphorus, orthophosphate, dissolved-----------------	T	17	.00-.11	.02	21	.00-.04	.01	25	.00-.07	.03
Nitrogen, total------------	T	17	.55-3.1	1.1	2	.73-.76	.10	24	.31-1.3	.95
Nitrogen, nitrite plus nitrate, total------------	T	17	.02-.86	.58	21	.00-.24	.10	24	.02-.85	.49
Nitrogen, ammonia, total---	T	17	.08-2.2	.29	21	.01-.30	.11	25	.01-.88	.22
Nitrogen, organic, total---	T	17	.10-.90	.27	2	.31-.33	.32	25	.00-.45	.24
Nitrogen, Kjeldahl, total--	T	17	.23-3.1	.57	2	.61-.63	.09	25	.16-1.3	.46
Carbon, organic, total-----	T	17	2.3-16	4.4	20	2.5-15	4.4	25	1.7-8.8	3.8
Carbon, organic, dissolved-----------------	T	17	1.9-6.9	3.5	19	2.3-8.2	3.2	25	1.7-8.3	3.0
					1978 stratified period					
Phosphorus, total----------	U	18	0.01-0.04	0.03	+	+	+	17	0.01-0.04	0.02
	L	9	.01-.27	.09	+	+	+	10	.01-.05	.04
Phosphorus, orthophosphate, dissolved-----------------	U	17	.00-.03	.01	+	+	+	17	.00-.04	.01
	L	9	.00-.20	.06	+	+	+	10	.00-.02	.01
Nitrogen, total (N)--------	U	$	$	$	+	+	+	$	$	$
	L	$	$	$	+	+	+	$	$	$
Nitrogen, nitrite plus nitrate, total------------	U	$	$	$	+	+	+	$	$	$
	L	$	$	$	+	+	+	$	$	$
Nitrogen, ammonia, total---	U	18	.00-.21	.03	+	+	+	17	.00-.18	.04
	L	9	.16-2.9	.84	+	+	+	10	.09-.95	.34
Nitrogen, organic, total---	U	18	.31-1.0	.46	+	+	+	17	.19-.52	.36
	L	9	.00-.30	.19	+	+	+	8	.02-.45	.18
Nitrogen, Kjeldahl, total--	U	18	.36-1.0	.50	+	+	+		.26-.56	.40
	L	9	.40-2.6	.73	+	+	+	8	.23-1.4	.45
Carbon, organic, total-----	U	18	2.8-11	6.3	+	+	+	17	2.9-17	7.3
	L	9	3.6-20	7.0	+	+	+	10	3.6-14	7.3
Carbon, organic, dissolved-----------------	U	18	2.0-9.7	4.8	+	+	+	17	2.7-8.6	4.7
	L	9	2.6-11	4.5	+	+	+	10	2.5-8.4	4.4

Means and ranges of nutrient concentrations at tributary stations in West Point Reservoir, April 1978-December 1979--Continued

[N, number of samples; U, above the thermocline; L, below the thermocline; T, entire water column; +, station not established; *, analysis not required; $, deleted because of questionable analytical results. Results in milligrams per liter]

		Sampling station								
		Yellowjacket Creek			Wehadkee Creek					
		CH-08			CH-04			CH-13		
		N	Range	Mean	N	Range	Mean	N	Range	Mean
					1979 stratified period					
Phosphorus, total----------	U	14	0.02-0.07	0.04	*	*	*	11	0.01-0.04	0.02
	L	8	.02-.22	.11	*	*	*	4	.01-.04	.03
Phosphorus, orthophosphate, dissolved-----------------	U	14	.00-.03	.01	8	0.00-0.03	0.00	11	.00-.00	.00
	L	8	.00-.16	.07	4	.01-.01	.01	4	.00-.01	.01
Nitrogen, total (N)--------	U	14	.10-1.1	.56	3	.40-.80	.48	11	.07-1.5	.58
	L	8	.61-2.1	1.1	1	.40	—	4	.38-.98	.74
Nitrogen, nitrite plus nitrate, total------------	U	14	.01-.56	.19	8	.00-.01	.00	11	.00-.26	.15
	L	8	.00-.35	.11	4	.00-.05	.02	4	.00-.13	.05
Nitrogen, ammonia, total---	U	14	.00-.21	.04	8	.00-.18	.02	11	.01-.19	.03
	L	8	.12-2.0	.80	4	.02-.67	.26	4	.13-1.0	.57
Nitrogen, organic, total---	U	14	.08-.46	.33	3	.39-.62	.43	11	.02-1.3	.40
	L	8	.01-.60	.23	1	.34	—	4	.00-.30	.13
Nitrogen, Kjeldahl, total--	U	14	.09-.59	.37	3	.39-.80	.47	11	.06-1.3	.43
	L	8	.36-2.1	1.03	1	.36	—	4	.25-.98	.69
Carbon, organic, total-----	U	14	2.7-9.0	4.6	8	3.3-11	4.2	11	2.7-6.2	4.3
	L	8	2.2-11	5.2	4	2.5-4.0	3.6	4	2.9-4.1	3.6
Carbon, organic, dissolved----------------	U	14	2.0-6.2	3.9	8	2.3-4.2	3.4	11	2.2-6.0	3.4
	L	8	2.0-9.2	4.4	4	2.4-2.8	2.6	4	2.9-4.1	3.6

Means and ranges of nutrient concentrations at stations on the Chattahoochee River, downstream from West Point Dam, April 1978-December 1979

[N, number of samples; H, maximum release; L, minimum release; $, deleted because of questionable analytical results. Results in milligrams per liter]

		Sampling station														
		CH-2.5B			CH-01A			CH-01B			CH-01C			CH-01D		
		N	Range	Mean	N	Range	Mean	N	Range	Mean	N	Range	Mean	N	Range	Mean
								Unstratified periods								
Phosphorus,	H	7	0.02-0.07	0.04	8	0.02-0.07	0.04	8	0.02-0.07	0.04	7	0.04-0.07	0.05	8	0.03-0.08	0.06
total-----------	L	8	.03-.08	.04	7	.02-.06	.03	8	.02-.06	.04	8	.03-.07	.05	6	.02-.10	.06
Phosphorus, orthophosphate,	H	6	.00-.07	.02	7	.00-.04	.01	8	.00-.04	.02	7	.00-.04	.02	8	.00-.06	.02
dissolved-------	L	8	.00-.08	.02	7	.00-.03	.01	8	.00-.03	.01	8	.00-.04	.02	8	[illegible]-.04	.03
Nitrogen,	H	8	.56-1.6	1.0	8	.51-1.7	1.0	8	.47-1.4	.94	8	.51-1.5	1.0	8	.57-1.1	.89
total-----------	L	8	.58-1.1	.85	7	.47-1.2	.83	8	.33-1.0	.78	8	.36-1.2	.76	7	.39-1.1	.75
Nitorgen, nitrite plus nitrate,	H	8	.07-.86	.49	8	.07-.82	.48	8	.07-.84	.52	8	.09-.82	.49	8	.10-.82	.49
total-----------	L	8	.08-.64	.41	7	.11-.76	.39	8	.12-.64	.41	8	.12-.67	.41	8	.12-.64	.41
Nitrogen, ammonia,	H	8	.05-.23	.14	8	.05-.22	.14	8	.05-.30	.16	8	.05-.26	.13	8	.04-.24	.12
total-----------	L	3	.06-.21	.13	7	.02-.15	.10	8	.01-.15	.10	8	.00-.16	.09	8	.00-.15	.09
Nitrogen, or-	H	8	.10-.70	.36	8	.10-1.1	.35	8	.08-.67	.26	8	.05-.90	.36	8	.10-.61	.29
ganic, total----	L	8	.16-.55	.31	7	.22-.57	.34	8	.03-.43	.28	8	.07-.37	.26	7	.10-.39	.27
Nitrogen, Kjel-	H	8	.28-.86	.50	8	.23-1.2	.49	8	.19-.87	.41	8	.23-.99	.49	8	.28-.85	.41
dahl, total-----	L	8	.27-.64	.45	7	.24-.62	.44	8	.04-.50	.38	8	.07-.53	.35	7	.10-.51	.35
Carbon, or-	H	8	1.1-6.2	3.3	8	1.5-4.2	3.1	8	1.6-4.6	3.1	8	1.8-6.9	3.6	8	2.3-4.3	3.0
ganic, total----	L	8	3.1-5.2	4.2	7	2.4-4.1	3.0	8	1.6-8.2	3.7	8	2.3-5.0	3.4	8	2.5-6.6	4.1
Carbon, organic,	H	8	1.1-3.7	2.7	8	1.3-4.1	2.6	8	1.6-4.6	3.0	8	1.1-5.6	2.7	8	2.0-4.3	3.0
dissolved-------	L	8	1.6-5.2	3.4	7	2.0-4.0	2.8	7	1.6-4.3	2.7	8	2.3-4.3	3.0	6	2.5-6.6	3.9
								1978 stratified period								
Phosphorus,	H	5	0.02-0.07	0.03	5	0.03-0.06	0.04	5	0.03-0.06	0.04	5	0.03-0.06	0.04	5	0.03-0.09	0.05
total-----------	L	5	.02-.04	.03	5	.02-.07	.04	5	.02-.03	.03	5	.03-.07	.04	5	.06-.12	.08
Phosphorus, orthophosphate,	H	5	.00-.05	.02	5	.01-.02	.01	4	.00-.01	.01	5	.01-.03	.01	5	.00-.04	.02
dissolved-------	L	5	.00-.02	.01	5	.00-.07	.02	5	.00-.03	.01	5	.01-.05	.03	5	.01-.07	.04
Nitrogen,	H	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$
total-----------	L	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$
Nitrogen, nitrite plus nitrate,	H	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$
total-----------	L	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$
Nitrogen, ammonia,	H	5	.10-.48	.25	5	.13-.41	.24	5	.13-.46	.26	5	.13-.44	.21	5	.10-.46	.23
total-----------	L	5	.06-.21	[illegible]	5	.04-.13	.10	5	.03-.14	.08	5	.02-.14	.09	5	.02-.25	.11
Nitrogen, or-	H	5	.13-.74	.31	5	.21-.79	.36	5	.14-.27	.20	4	.15-.28	.20	5	.20-.38	.28
ganic, total----	L	5	.17-.94	.42	5	.18-.37	.28	5	.18-.40	.30	5	.14-.36	.25	5	.16-.62	.30
Nitrogen, Kjel-	H	5	.31-1.1	.56	5	.36-1.2	.60	5	.35-.68	.46	4	.31-.59	.43	5	.36-.84	.51
dahl, total-----	L	5	.34-1.1	.55	4	.31-.46	.37	5	.26-.54	.36	5	.21-.50	.34	5	.24-.87	.41
Carbon, or-	H	5	2.3-8.2	5.2	5	2.6-5.2	4.7	5	2.9-13	6.3	5	3.8-26	9.5	5	2.7-9.0	6.5
ganic, total----	L	5	3.1-6.2	4.4	5	2.7-6.5	4.7	5	3.0-9.6	6.4	5	3.0-12	6.2	5	4.2-7.9	5.6
rbon, organic,	H	5	1.4-8.2	4.8	5	.60-4.6	2.3	5	1.6-4.6	2.7	5	2.0-14	5.9	5	1.9-8.0	4.8
dissolved-------	L	5	1.6-4.1	3.0	5	1.5-4.8	3.2	5	2.2-5.2	4.0	5	[illegible]-6.0	4.1	5	1.7-[illegible]	3.5

Means and ranges of nutrient concentrations at stations on the Chattahoochee River, downstream from West Point Dam, April 1978-December 1979--Continued

[N, number of samples; H, maximum release; L, minimum release; $, deleted because of questionable analytical results. Results in milligrams per liter]

		Sampling station														
		CH-2.5B			CH-01A			CH-01B			CH-01C			CH-01D		
		N	Range	Mean	N	Range	Mean	N	Range	Mean	N	Range	Mean	N	Range	Mean
1979 stratified period																
Phosphorus,	H	3	0.01-0.04	0.03	3	0.02-0.04	0.03	3	0.01-0.03	0.02	3	0.02-0.04	0.03	3	0.02-0.07	0.04
total----------	L	3	.01-.04	.03	4	.02-.06	.03	3	.01-.04	.03	3	.03-.05	.04	3	.05-.10	.07
Phosphorus, orthophosphate,	H	3	.01-.02	.1	3	.00-.01	.01	3	.01-.01	.01	3	.00-.02	.01	3	.00-.01	.01
dissolved -------	L	3	.00-.02	.01	3	.00-.01	.01	3	.00-.01	.00	3	.00-.02	.01	3	.01-.05	.03
Nitrogen,	H	3	.72-.84	.77	0	-	-	3	.58-.66	.61	3	.59-.63	.61	3	.55-.60	.57
total----------	L	3	.47-.67	.57	3	.49-.62	.54	3	.47-.54	.51	3	.46-.58	.53	3	.33-.63	.49
Nitrogen, nitrite plus nitrate,	H	3	.05-.27	.13	3	.05-.27	.13	3	.05-.28	.13	3	.06-.31	.15	3	.07-.32	.16
total----------	L	3	.04-.10	.08	4	.05-.22	.12	3	.06-.25	.13	3	.10-.27	.16	3	.10-.26	.17
Nitrogen, ammonia,	H	3	.06-.47	.29	3	.06-.40	.27	3	.06-.41	.26	3	.06-.40	.24	3	.05-.38	.16
total----------	L	3	.06-.50	.23	4	.02-.46	.16	3	.06-.31	.15	3	.02-.18	.12	3	.00-.14	.08
Nitrogen, or-	H	3	.30-.41	.34	3	.14-.38	.28	3	.12-.30	.22	3	.18-.27	.22	3	.15-.40	.35
ganic, total----	L	3	.13-.34	.26	3	.11-.31	.22	3	.17-.30	.23	3	.19-.28	.24	3	.13-.35	.27
Nitrogen, Kjel-	H	3	.47-.79	.64	3	.37-.72	.54	3	.31-.60	.48	3	.28-.58	.46	3	.24-.53	.41
dahl, total-----	L	3	.37-.63	.49	3	.30-.57	.43	3	.28-.48	.38	3	.21-.46	.36	3	.23-.49	.32
Carbon, or-	H	3	3.5-4.3	3.9	3	2.2-3.1	2.7	3	2.4-4.9	3.5	3	2.7-3.5	3.2	3	2.1-4.0	3.0
ganic, total----	L	3	2.8-5.4	4.0	4	2.6-5.0	3.6	3	2.3-10	5.4	3	2.7-4.4	3.6	3	2.8-59	3.9
Carbon, organic,	H	3	2.1-3.9	2.9	3	2.0-2.9	2.4	3	2.0-2.9	2.4	3	2.0-3.5	2.7	3	2.0-3.2	2.7
dissolved-------	L	3	2.8-3.9	3.3	3	1.9-2.9	2.5	3	2.2-10	4.9	3	2.5-3.2	2.8	3	2.8-4.7	3.5

APPENDIX B-6

Means and ranges of metal concentrations

[Iron, total; iron, dissolved; manganese, total; manganese, dissolved; zinc, total; calcium, total; magnesium, total; potassium, total; sodium, total]

Means and ranges of metal concentrations at Chattahoochee River stations in West Point Reservoir, April 1978-December 1979

[N, number of samples, U, above the thermocline; L, below the thermocline; T, entire water column; +, station not established; *, analysis not required, #, not applicable. Results in micrograms per liter]

		Sampling station								
		CH-12			CH-11A			CH-10		
		N	Range	Mean	N	Range	Mean	N	Range	Mean
Unstratified periods										
Metals:										
Iron, total----------	T	9	1,100-5,400	2,400	2	1,300-2,000	1,700	40	450-4,800	1,900
Iron, dissolved-------	T	9	10-120	50	2	100-120	110	40	10-340	80
Manganese, total------	T	9	60-200	120	*	*	*	40	50-520	180
Manganese, dissolved--	T	9	20-40	30	*	*	*	40	0-180	100
Zinc, total----------	T	1	20	--	*	*	*	11	20-60	30
Calcium, total--------	T	1	3,300	--	*	*	*	5	3,200-3,500	3,300
Magnesium, total------	T	1	1,100	—	*	*	*	5	1,000-1,200	1,100
Potassium, total------	T	1	1,600	—	*	*	*	5	1,700-1,800	1,700
Sodium, total---------	T	1	5,400	—	*	*	*	5	5,200-5,500	5,400
1978 stratified period										
Metals:										
Iron, total----------	U	5	610-4,800	2,600	+	+	+	10	90-580	250
	L	#	#	#	#	#	#	10	360-8,700	3,300
Iron, dissolved-------	U	5	20-70	40	+	+	+	9	0-80	18
	L	#	#	#	#	#	#	9	0-6,500	1,500
Manganese, total------	U	5	40-130	90	+	+	+	10	10-110	40
	L	#	#	#	#	#	#	8	70-2,500	880
Manganese, dissolved--	U	5	20-70	40	+	+	+	10	0-20	3
	L	#	#	#	#	#	#	9	0-2,500	840
Zinc, total----------	U	5	30-80	50	+	+	+	10	10-50	30
	L	#	#	#	#	#	#	9	10-60	40
Calcium, total--------	U	1	3,500	--	+	+	+	2	4,100	4,100
	L	#	#	#	#	#	#	3	3,600-3,800	3,600
Magnesium, total------	U	1	1,200	--	+	+	+	2	1,200	1,200
	L	#	#	#	#	#	#	3	1,100-1,200	1,100
Potassium, total------	U	1	2,000	—	+	+	+	2	2,000	2,000
	L	#	#	#	#	#	#	3	2,000	2,000
Sodium, total----------	U	1	4,500	—	+	+	+	2	5,100-5,200	5,200
	L	#	#	#	#	#	#	3	4,300-4,700	4,400
1979 stratified period										
Metals:										
Iron, total----------	U	3	2,000-2,600	2,300	*	*	*	4	160-490	240
	L	#	#	#	#	#	#	6	360-2,400	1,800
Iron, dissolved-------	U	3	20-60	40	*	*	*	4	10-20	20
	L	#	#	#	#	#	#	6	30-40	30
Manganese, total------	U	3	90-120	110	*	*	*	4	30-40	30
	L	#	#	#	#	#	#	6	70-480	270
Manganese, dissolved--	U	33	10-60	[illegible]	*	*	*	4	0-30	10
	L	#	#	#	#	#	#	6	0-410	150

Means and ranges of metal concentrations at Chattahoochee River stations in West Point Reservoir, April 1978-December 1979--Continued

[N, number of samples; U, above the thermocline; L, below the thermocline; T, entire water column; +, station not established; *, analysis not required; #, not applicable. Results in micrograms per liter]

		Sampling station								
		CH-07			CH-05A			CH-03C		
		N	Range	Mean	N	Range	Mean	N	Range	Mean
Unstratified periods										
Metals:										
Iron, total-----------	T	30	340-6,300	2,000	30	60-2,400	1,200	30	80-2,400	700
Iron, dissolved-------	T	30	0-250	80	30	10-140	50	31	0-210	40
Manganese, total------	T	30	40-550	200	31	20-240	140	31	30-1,200	180
Manganese, dissolved--	T	30	0-240	100	31	0-210	90	31	0-1,100	120
Zinc, total-----------	T	5	20-30	20	5	20-30	20	*	*	*
Calcium, total--------	T	*	*	*	*	*	*	+	+	+
Magnesium, total------	T	*	*	*	*	*	*	+	+	+
Potassium, total------	T	*	*	*	*	*	*	+	+	+
Sodium, total---------	T	*	*	*	*	*	*	+	+	+
1978 stratified period										
Metals:										
Iron, total-----------	U	14	90-310	160	13	50-210	120	18	40-250	120
	L	11	200-10,000	2,400	11	150-10,000	2,800	12	90-1,800	880
Iron, dissolved-------	U	14	0-60	10	14	0-50	10	18	0-40	10
	L	11	10-5,600	770	11	0-2,900	610	12	0-1,800	290
Manganese, total------	U	14	10-150	40	14	10-30	20	18	0-120	20
	L	11	50-1,900	530	11	30-3,500	1,000	12	20-1,300	530
Manganese, dissolved--	U	14	0-110	15	14	0-20	10	18	0-20	10
	L	11	0-1,900	440	11	0-3,500	980	12	10-1,300	520
Zinc, total-----------	U	14	10-300	30	13	10-80	30	18	0-160	40
	L	11	20-110	40	11	10-90	40	12	0-70	50
Calcium, total--------	U	6	3,400-4,100	3,700	6	3,100-3,900	3,800	6	3,000-4,000	3,800
	L	4	3,200-3,900	3,600	4	3,100-3,700	3,700	4	2,800-3,700	3,200
Magnesium, total------	U	6	1,100-1,300	1,200	6	1,000-1,200	1,200	6	900-1,300	1,200
	L	4	1,100-1,200	1,200	4	1,100	1,100	4	900-1,100	1,000
Potassium, total------	U	6	1,500-2,100	1,800	6	1,400-1,900	1,600	6	1,200-1,800	1,700
	L	4	1,400-2,000	1,700	4	1,400-1,800	1,600	4	1,200-1,800	1,500
Sodium, total---------	U	6	5,000-5,400	5,200	6	4,500-5,400	4,900	6	3,600-5,500	5,200
	L	4	3,900-5,100	4,500	4	3,600-5,000	4,300	4	3,500-5,100	4,100
1979 stratified period										
Metals:										
Iron, total-----------	U	8	120-770	320	10	110-550	260	12	80-250	120
	L	7	190-1,500	1,100	4	780-3,300	2,100	6	340-4,600	1,900
Iron, dissolved-------	U	8	10-100	30	10	10-70	20	12	0-30	10
	L	7	20-80	40	4	30-1,600	670	6	0-4,400	1,500
Manganese, total------	U	8	20-80	40	10	0-310	20	12	0-30	10
	L	7	20-760	410	4	110-1,700	1,300	6	170-2,000	1,100
Manganese, dissolved--	U	8	0-20	10	10	0-150	10	12	0-10	0
	L	7	0-720	330	4	50-1,600	1,200	6	30-2,000	1,000

Means and ranges of metal concentrations in tributary stations
in West Point Reservoir, April 1978-December 1979

[N, number of samples; U, above the thermocline; L, below the thermocline; T, entire water column; *, analysis not required. Results in micrograms per liter]

		Sampling station					
		Yellowjacket Creek			Wehadkee Creek		
		CH-08			CH-13		
		N	Range	Mean	N	Range	Mean
				Unstratified periods			
Metals:							
Iron, total-------------	T	17	760-1,300	1,300	25	120-4,800	1,100
Iron, dissolved---------	T	17	0-12,000	700	25	0-4,200	320
Manganese, total--------	T	17	60-5,200	470	25	40-2,300	330
Manganese, dissolved----	T	17	0-5,200	380	25	0-2,300	280
Calcium, total----------	T	*	*	*	*	*	*
Magnesium, total--------	T	*	*	*	*	*	*
Potassium, total--------	T	*	*	*	*	*	*
Sodium, total-----------	T	*	*	*	*	*	*
				1978 stratified period			
Metals:							
Iron, total-------------	U	18	100-310	180	17	10-260	120
	L	9	230-17,000	4,400	10	130-7,800	2,400
Iron, dissolved---------	U	18	0-70	20	17	0-100	20
	L	9	10-16,000	3,300	10	10-2,500	780
Manganese, total--------	U	18	20-90	30	16	10-40	20
	L	9	40-5,700	1,900	10	30-2,500	1,200
Manganese, dissolved----	U	18	0-20	10	17	0-50	10
	L	9	10-5,700	1,800	10	0-2,500	1,000
Calcium, total----------	U	6	3,000-4,400	4,200	4	3,300-4,200	4,100
	L	3	[illegible],000-6,500	4,400	3	2,400-4,300	3,100
Magnesium, total--------	U	6	1,000-1,500	1,300	3	1,000-1,300	1,000
	L	3	400-2,000	1,300	3	900-1,200	1,000
Potassium, total--------	U	6	1,300-2,100	2,000	4	1,200-2,100	2,000
	L	3	1,400-2,100	1,800	3	1,200-2,100	1,600
Sodium, total-----------	U	6	3,800-5,300	4,900	4	4,300-5,400	5,200
	L	3	3,500-5,000	4,000	3	2,900-5,200	3,600
				1979 stratified period			
Metals:							
Iron, total-------------	U	14	160-1,400	660	11	90-370	160
	L	8	310-12,000	4,800	4	130-5,100	3,200
Iron, dissolved---------	U	14	10-80	40	11	0-60	20
	L	8	50-11,000	3,500	4	0-5,000	2,600
Manganese, total--------	U	14	10-640	70	11	0-90	10
	L	8	100-5,100	2,900	4	20-2,100	1,500
Manganese, dissolved----	U	14	0-40	10	11	0-30	0
	L	8	40-4,400	2,000	4	0-2,100	1,500

Means and ranges of metal concentrations at stations near the inundated coffer structure upstream from West Point Dam, April 1978-December 1979

[N, number of samples; U, above the thermocline; L, below the thermocline; T, entire water column; *, analysis not required. Results in micrograms per liter]

		Sampling station								
		CH-03A			CH-03B			CH-03C		
		N	Range	Mean	N	Range	Mean	N	Range	Mean
					Unstratified periods					
Iron, total	T	14	130-2,100	800	31	80-2,700	790	30	80-2,400	620
Iron, dissolved	T	29	80-2,200	30	31	0-90	20	31	0-210	[illegible]
Manganese, total	T	*	*	*	*	*	*	31	30-1,200	150
Manganese, dissolved	T	*	*	*	*	*	*	31	0-1,100	[illegible]
					1978 stratified period					
Iron, total	U	16	10-550	140	16	30-1,300	160	18	40-250	120
	L	9	80-2,500	1,100	8	80-1,800	950	12	90-1,800	[illegible]
Iron, dissolved	U	16	0-60	20	16	0-50	20	18	0-40	10
	L	9	0-1,200	290	9	0-1,500	320	12	0-1,800	410
Manganese, total	U	*	*	*	*	*	*	18	0-120	20
	L	*	*	*	*	*	*	12	20-1,300	[illegible]
Manganese, dissolved	U	*	*	*	*	*	*	18	0-20	10
	L	*	*	*	*	*	*	12	10-1,300	430
					1979 stratified period					
Iron, total	U	16	60-200	120	16	60-220	120	12	80-250	120
	L	9	540-8,100	3,500	8	530-6,600	3,100	6	340-4,600	2,100
Iron, dissolved	U	16	0-60	20	16	10-100	20	12	0-30	10
	L	9	20-7,700	2,400	8	[illegible]	2,000	6	0-4,400	1,600
Manganese, total	U	*	*	*	*	*	*	12	0-30	10
	L	*	*	*	*	*	*	6	0-2,000	1,100
Manganese, dissolved	U	*	*	*	*	*	*	12	0-10	[illegible]
	L	*	*	*	*	*	*	6	30-2,000	1,100

Means and ranges of metal concentrations at stations on the Chattahoochee River
Downstream from West Point Dam, April 1978-December 1979

[N, number of samples; H, maximum release; L, minimum release; *, analysis not required.
Results in micrograms per liter]

		Sampling station														
		CH-2.5B			CH-01A			CH-01B			CH-01C			CH-01D		
		N	Range	Mean	N	Range	Mean	N	Range	Mean	N	Range	Mean	N	Range	Mean
Unstratified periods																
[illegible]:																
Iron,	H	8	170-1,500	[illegible]	8	340-1,700	760	8	240-1,700	800	7	330-1,900	980	8	560-1,200	1,200
total----------	L	8	140-1,400	[illegible]	7	150-1,400	570	8	130-1,500	560	8	170-1,500	570	8	150-1,600	630
Iron,	H	8	[illegible]	30	8	0-110	30	8	0-410	80	8	0-310	80	8	0-70	30
dissolved------	L	8	[illegible]-120	40	6	10-130	40	8	0-120	40	8	0-80	30	8	10-130	50
[illegible]nese,	H	8	[illegible]-220	110	8	70-220	120	8	70-210	130	7	80-440	170	8	90-280	170
total---------	L	8	30-310	[illegible]	7	40-130	90	8	40-210	90	8	30-220	90	8	60-180	90
[illegible],	H	8	[illegible]	[illegible]	8	10-1[illegible]	50	8	10-120	50	8	10-220	60	8	10-110	30
[illegible]	L	8	[illegible]	[illegible]	7	10-80	40	8	[illegible]	50	8	10-130	40	8	10-110	40
[illegible],	H	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
[illegible]----	L	1	3,[illegible]	--	1	3,[illegible]	--	1	3,100	--	1	3,200	--	1	3,200	—
[illegible],	H	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
[illegible]-------	L	1	1,000	--	1	1,200	--	1	1,[illegible]	--	1	1,100	--	1	1,100	—
[illegible],	H	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
[illegible]-------	L	1	1,200	--	1	1,100	--	1	1,200	--	1	1,300	—		1,200	--
[illegible],	H	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
total----------	L	1	4,[illegible]	--	1	3,800	--	1	4,000	--	1	4,800	--	1	5,000	--
1978 stratified period																
[illegible]:																
[illegible],	H	[illegible]	[illegible]-1,900	730	5	[illegible]	[illegible]	5	[illegible]-1,900	980	5	550-1,900	990	5	490-1,500	1,000
total----------	L	5	[illegible],100	670	5	320-1,300	[illegible]	5	[illegible]	600	5	210-1,600	670	5	320-1,300	680
[illegible],	H	5	10-1,900	[illegible]	5	0-260	110	5	20-1,100	360	5	20-190	90	5	10-250	90
[illegible]------	L	5	[illegible]-260	100	5	10-100	50	5	[illegible]	100	5	0-80	40	5	0-90	30
[illegible],	H	5	140-1,200	430	5	230-1,000	460	5	210-1,100	490	5	190-710	420	5	210-960	490
total---------	L	5	110-310	230	5	70-280	180	5	[illegible]-240	170	5	40-230	150	5	70-240	140
[illegible],	H	5	110-1,200	420	5	170-510	[illegible]	5	200-1,100	490	5	150-680	380	5	130-840	440
[illegible]------	L	5	80-310	220	5	30-280	180	5	20-230	160	5	10-220	120	5	20-240	110
[illegible],	H	1	4,100	--	1	4,300	--	1	4,400	—	1	4,100	--	1	4,300	--
total---------	L	1	4,200	--	--	--	--	1	4,400	--	1	4,400	--	1	4,400	--
[illegible],	H	1	1,200	--	1	1,200	--	1	1,200	—	1	1,200	—	1	1,200	—
total---------	L	1	1,300	--	-	--	--	1	1,300	--	1	1,400	—	1	1,400	--
[illegible],	H	1	2,100	--	1	2,100	--	1	2,100	—	1	2,100	--	1	2,100	--
total---------	L	1	2,000	--	--	--	--	1	2,000	--	1	2,000	--	1	2,000	—
[illegible],	H	1	5,200	--	1	5,600	--	1	5,300	--	1	5,100	--	1	5,300	—
total---------	L	1	5,600	--	--	--	--	1	5,600	--	1	6,600	—	1	7,300	—
1979 stratified period																
Metals:																
Iron,	H	3	300-1,300	930	3	290-1,200	900	3	400-1,200	900	3	320-1,300	940	3	640-2,500	1,510
total----------	L	3	350-1,700	940	3	320-1,500	910	3	290-1,200	800	3	340-1,100	750	3	380-1,500	940
Iron,	H	3	10-1,100	650	3	20-810	480	3	30-800	500	3	20-530	290	3	20-410	210
dissolved------	L	3	10-1,200	510	3	10-850	320	3	0-330	160	3	10-120	80	3	10-180	110
Manganese,	H	3	110-750	410	3	160-730	480	3	110-750	500	3	110-740	500	3	90-700	410
total---------	L	3	130-760	390	3	110-710	360	3	70-500	280	3	40-430	270	3	30-640	360
Manganese,	H	3	120-750	500	3	130-730	480	3	110-750	500	3	100-740	490	3	90-690	310
dissolved------	L	3	120-760	390	3	110-710	360	3	70-500	260	3	30-430	250	3	30-640	350

APPENDIX B-7

Means and ranges of biological data from West Point Reservoir

[Euphotic depth; Secchi disc visibility; seston, dry weight; seston, ash weight; seston, volatile weight; phytoplankton, standing stock; chlorophyll a; chlorophyll b; zooplankton, standing stock; adenosine triphosphate; algal growth potential]

Means and ranges of biological data from West Point Reservoir, 1978 and 1979

[Euphotic zone: that column of water absorbing 99 percent of the incident surface light. All sampling, with the exception of zooplankton, restricted to the euphotic zone. Zooplankton were analyzed from samples composited over the entire water column. *, no euphotic depth determined at this station; x, station not established; +, not required for this station]

	Sampling stations								
	CH-12			CH-11A			CH-10		
	N	Range	Mean	N	Range	Mean	N	Range	Mean
				April-October 1978					
Euphotic depth (m)	*	*	*	x	x	x	7	1.0-3.0	2.1
Secchi-disc visibility (m)	+	+	+	x	x	x	7	.20-1.10	.71
Seston, dry weight (mg/L)	6	8.0-60.0	32.0	x	x	x	5	3.0-50.0	16.6
Seston, ash weight (mg/L)	6	12.0-50.0	29.4	x	x	x	5	0.0-27.0	7.4
Seston, volatile weight (mg/L)	6	2.0-10.0	7.4	x	x	x	5	3.0-23.0	9.2
Phytoplankton standing stock (cells/mL)	6	510-5,840	2,430	x	x	x	6	5,540-458,600	183,130
Chlorophyll *a* (ug/L)	7	1.12-4.81	2.60	x	x	x	7	2.99-34.7	[illegible]
Chlorophyll *b* (ug/L)	7	—	.00	x	x	x	7	.00-3.43	1.17
Zooplankton standing stock (organisms/m)	5	0-1,000	200	x	x	x	6	1,000-71,000	34,300
Adenosine triphosphate (ug/L)	5	.10-.44	.23	x	x	x	5	.18-2.34	1.24
Algal growth potential (mg/L)	7	27-48	37.4	x	x	x	5	4.1-1.90	3.05
				March-December 1979					
Euphotic depth (m)	*	*	*	8	1.0-2.0	1.6	7	1.5-3.0	2.3
Secchi-disc visibility (m)	6	0.20-.65	0.40	8	.30-.65	.48	8	.55-.80	.71
Seston, dry weight (mg/L)	7	28.0-99.0	57.5	7	17.3-39.5	24.0	7	9.3-22.0	14.8
Seston, ash weight (mg/L)	7	22.0-86.5	48.1	7	13.7-35.0	19.9	7	3.5-18.3	10.6
Seston, volatile weight (mg/L)	7	6.0-12.5	10.7	7	2.7-6.0	4.1	7	1.7-7.5	4.0
Phytoplankton standing stock (cells/mL)	7	10,030-22,260	14,010	7	2,060-18,800	9,379	7	2,000-302,840	88,460
Chlorophyll *a* (ug/L)	2	2.02-2.72	2.37	4	3.54-9.36	6.48	8	3.60-26.8	11.1
Chlorophyll *b* (ug/L)	8	—	.00	8	—	.00	6	.00-.79	.10
Zooplankton standing stock (organisms/m)	7	1,190-7,850	3,950	7	1,300-8,770	4,743	7	1,130-98,180	41,120
Adenosine triphosphate (ug/L)	5	.11-1.10	.48	5	.20-1.00	.46	5	.45-4.4	1.69
Algal growth potential (mg/L)	+	+	+	+	+	+	+	+	+

Means and ranges of biological data from West Point Reservoir, 1978 and 1979--Continued

[Euphotic zone: that column of water absorbing 99 percent of the incident surface light. All sampling, with the exception of zooplankton, restricted to the euphotic zone. Zooplankton were analyzed from samples composited over the entire water column. *, no euphotic depth determined at this station; x, station not established; +, not required for this station]

	Sampling stations								
	CH-07			CH-05A			CH-03C		
	N	Range	Mean	N	Range	Mean	N	Range	Mean
				April-October 1978					
Euphotic depth (m)-----------	6	1.0-4.0	2.7	7	2.0-4.0	3.4	7	2.0-6.0	4.0
Secchi-disc visibility (m)---	6	.20-1.60	1.05	7	.80-1.30	1.10	6	1.00-1.90	1.44
Seston, dry weight (mg/L)----	6	6.0-27.0	12.8	6	6.0-13.0	8.8	6	2.0-8.0	6.3
Seston, ash weight (mg/L)----	6	2.0-13.0	4.5	5	2.0-4.0	2.4	6	.0-3.0	1.3
Seston, volatile weight (mg/L)--------------------	6	3.0-14.0	8.2	5	4.0-8.0	5.6	6	1.0-6.0	5.0
Phytoplankton standing stock (cells/mL)-----------	6	22,190-666,280	229,090	6	18,810-276,110	128,110	6	5,870-123,530	66,560
Chlorophyll _a_ (ug/L)---------	6	8.55-34.3	23.7	6	7.85-31.5	20.5	7	9.22-21.3	14.2
Chlorophyll _b_ (ug/L)---------	6	.00-2.76	.46	6	--	.00	7	.00-2.93	.42
Zooplankton standing stock (organisms/m)---------	6	2,000-65,000	37,700	6	6,000-102,000	41,800	5	1,000-21,000	11,800
Adenosine triphosphate (ug/L)--------------------	4	.44-2.67	1.64	4	.06-1.94	.98	4	.22-3.12	1.24
Algal growth potential (mg/L)--------------------	2	1.30-1.50	1.40	7	.60-4.00	1.93	7	.40-2.40	1.07
				March-December 1979					
Euphotic depth (m)-----------	7	1.5-4.0	2.5	7	1.5-4.0	2.9	7	1.5-5.5	3.7
Secchi-disc visibility (m)---	8	.45-1.00	.78	7	.4-1.20	.89	7	.40-1.70	1.14
Seston, dry weight (mg/L)----	8	6.0-16.7	9.5	7	4.0-11.3	7.2	7	2.0-10.3	5.2
Seston, ash weight (mg/L)----	7	2.3-9.0	5.1	7	.7-6.7	4.1	7	.5-7.7	2.9
Seston, volatile weight (mg/L)--------------------	7	1.2-7.7	4.4	7	1.4-4.6	3.1	7	.0-3.5	2.3
Phytoplankton standing stock (cells/mL)-----------	7	11,050-393,690	111,360	7	7,790-225,650	97,370	7	8,140-180,410	67,600
Chlorophyll _a_ (ug/L)---------	7	3.46-20.0	7.92	8	5.7-19.4	12.4	8	3.80-35.0	11.03
Chlorophyll _b_ (ug/L)---------	7	--	.00	8	.00-.94	.12	8	--	.00
Zooplankton standing stock (organisms/m)---------	7	[illegible]60-191,300	86,700	7	3,550-284,200	100,340	7	33,780-139,520	60,680
Adenosine triphosphate (ug/L)--------------------	7	.50-3.10	1.60	5	.20-1.40	.96	5	.10-1.66	.77
Algal growth potential (mg/L)--------------------	+	+	+	+	+	+	+	+	+

APPENDIX C

Physical and chemical data

APPENDIX C-1

Water-quality on-site measurements at stations in West Point Reservoir and the Chattahoochee River below West Point Dam, April 1978-December 1979

[Water temperature, specific conductance, oxidation-reduction potential, dissolved oxygen, pH, Secchi disc transparency, euphotic depth, and light light incident]

Page

CH-12 (02338500) Chattahoochee River at U.S. Highway 27, at Franklin, Ga., 1978 and 1979

DATE	TEMPER-ATURE, AIR (DEG C)	SAM-PLING DEPTH (M)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	PH (UNITS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	OXID-ATION RED-UCTION POTEN-TIAL (MV)	TRANS-PAR-ENCY (SECCHI DISK) (M)
APR , 1978								
18...	21.0	1.0	19.6	7.4	6.6	72	495	--
MAY								
08...	22.0	1.0	18.7	7.8	6.5	70	480	--
JUN								
06...	20.0	1.0	25.1	4.7	6.7	96	570	--
JUL								
13...	31.5	1.0	28.9	6.7	6.7	82	--	--
AUG								
17...	27.0	1.0	22.4	7.2	6.4	64	560	--
31...	30.0	1.0	22.7	7.1	6.5	63	590	--
OCT								
19...	23.4	1.0	14.9	9.1	6.6	62	575	--
NOV								
30...	12.0	1.0	13.5	8.4	6.8	71	530	--
JAN , 1979								
24...	-2.0	1.0	6.5	11.2	6.8	54	615	--
MAR								
22...	--	1.0	17.7	7.6	6.3	84	615	.65
MAY								
03...	25.5	1.0	14.8	9.1	6.2	46	645	.30
JUN								
13...	--	1.0	23.3	6.7	6.3	67	560	1.30
JUL								
26...	33.0	1.0	26.1	5.4	6.8	97	615	.40
AUG								
23...	35.0	1.0	26.8	5.7	6.6	71	455	.45
SEP								
20...	23.0	1.0	20.5	6.9	6.2	69	630	.20
OCT								
17...	19.0	1.0	15.8	8.2	6.3	61	605	--
DEC								
13...	13.0	1.0	14.2	8.6	6.4	90	585	--

CH-11A (02338570) Chattahoochee River above New River, near Corinth, Ga., 1979

DATE	TEMPER-ATURE, AIR (DEG C)	SAM-PLING DEPTH (M)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	PH (UNITS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	OXID-ATION RED-UCTION POTEN-TIAL (MV)	TRANS-PAR-ENCY (SECCHI DISK) (M)	LIGHT DEPTH TO 1% OF SURFACE LIGHT (FEET)	LIGHT INCI-DENT PERCENT REMAIN-ING AT DEPTH
MAR , 1979										
21...	25.0	.20	17.3	8.1	6.0	77	630	.65	2.00	--
21...	--	1.0	--	--	--	--	--	--	--	5.0
21...	--	2.0	17.2	8.1	5.9	77	630	--	--	1.0
21...	--	4.0	17.1	8.0	5.9	78	630	--	--	--
21...	--	5.0	17.1	7.9	5.8	78	630	--	--	--
MAY										
03...	30.0	.20	15.7	8.8	6.2	49	635	.65	2.00	--
03...	--	1.0	--	--	--	--	--	--	--	5.0
03...	--	2.0	15.6	8.8	6.2	49	640	--	--	1.0
03...	--	4.0	15.6	8.8	6.1	49	650	--	--	--
03...	--	6.0	15.5	8.8	6.1	49	640	--	--	--
JUN										
13...	33.0	.20	25.2	6.5	6.3	81	610	.45	1.50	--
13...	--	1.0	--	--	--	--	--	--	--	6.0
13...	--	1.5	--	--	--	--	--	--	--	1.0
13...	--	2.0	24.5	6.3	6.3	82	610	--	--	--
13...	--	4.0	23.8	6.1	6.2	78	615	--	--	--
13...	--	6.0	23.7	6.1	6.1	77	620	--	--	--
JUL										
26...	28.0	.20	27.5	7.1	6.8	76	590	.30	1.00	--
26...	--	1.0	--	--	--	--	--	--	--	1.0
26...	--	2.0	26.0	5.6	6.4	75	600	--	--	--
26...	--	3.0	25.7	5.4	6.4	74	610	--	--	--
26...	--	4.0	25.6	5.3	6.3	74	610	--	--	--
26...	--	5.0	25.5	5.2	6.3	73	615	--	--	--
26...	--	6.0	25.4	5.0	6.3	71	620	--	--	--
26...	--	7.0	25.1	5.0	6.3	71	620	--	--	--
26...	--	8.0	25.3	5.0	6.3	71	620	--	--	--
AUG										
23...	34.0	.20	28.5	5.6	6.7	79	495	.40	2.00	--
23...	--	1.0	--	--	--	--	--	--	--	8.0
23...	--	2.0	27.8	5.2	6.6	77	500	--	--	1.0
23...	--	3.0	27.6	5.1	6.6	78	500	--	--	--
23...	--	4.0	27.5	5.0	6.5	78	505	--	--	--
23...	--	5.0	27.4	4.9	6.5	78	15	--	--	--
23...	--	6.0	27.4	4.9	6.5	78	505	--	--	--
23...	--	7.0	27.4	4.8	6.5	79	510	--	--	--
23...	--	8.0	27.3	4.9	6.5	7[illegible]	510	--	--	--
SEP										
20...	19.5	.20	20.7	5.5	6.1	71	530	.30	--	NO
20...	--	1.0	--	--	--	--	--	--	--	--
20...	--	2.0	20.7	5.5	6.1	71	540	--	--	--
20...	--	3.0	20.7	5.5	6.1	71	550	--	--	--
20...	--	4.0	20.7	5.5	6.1	71	555	--	--	--
20...	--	5.0	20.7	5.4	6.2	71	560	--	--	--
20...	--	6.0	20.7	5.4	6.1	70	560	--	--	--
20...	--	7.0	20.7	5.4	6.1	70	565	--	--	--
20...	--	8.0	20.7	5.3	6.1	70	565	--	--	--
OCT										
17...	17.0	.20	15.8	8.0	6.2	67	625	.50	--	NO
17...	--	2.0	15.9	8.0	6.4	67	620	--	--	--
17...	--	4.0	15.9	7.9	6.4	67	615	--	--	--
17...	--	6.0	15.9	7.9	6.4	68	615	--	--	--
17...	--	8.0	15.8	7.9	6.4	66	615	--	--	--
DEC										
12...	23.0	.2	12.0	9.3	6.5	73	570	.65	2.00	--
12...	--	1.0	--	--	--	--	--	--	--	8.0
12...	--	2.0	11.9	9.3	6.5	73	545	--	--	1.0
12...	--	4.0	11.8	9.3	5.4	73	475	--	--	--
12...	--	5.0	11.8	9.2	6.[illegible]	73	420	--	--	--

[illegible] Chattahoochee River at State Highway 219, near LaGrange, Ga., 1978 and 1979

DATE	TEMPERATURE, AIR (DEG C)	SAMPLING DEPTH (M)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	PH (UNITS)	SPECIFIC CONDUCTANCE (MICROMHOS)	OXIDATION REDUCTION POTENTIAL (MV)	TRANSPARENCY (SECCHI DISK) (M)	LIGHT DEPTH TO 1% OF SURFACE LIGHT (FEET)	LIGHT INCIDENT PERCENT REMAINING AT DEPTH
APR., 1978										
17...	29.0	.20	22.1	11.6	8.4	72	455	.60	1.50	--
17...	--	1.0	--	--	--	--	--	--	--	6.0
17...	--	1.5	--	--	--	--	--	--	--	1.0
17...	--	2.0	20.8	9.2	6.8	72	470	--	--	--
17...	--	3.0	19.5	6.6	6.1	75	490	--	--	--
17...	--	4.0	19.0	5.7	5.9	75	505	--	--	--
17...	--	5.0	18.7	5.4	5.7	74	515	--	--	--
17...	--	6.0	18.6	5.1	5.5	75	525	--	--	--
17...	--	7.0	18.5	5.5	5.6	77	525	--	--	--
17...	--	8.0	18.4	5.3	5.6	76	525	--	--	--
17...	--	10.0	18.3	4.9	5.8	76	520	--	--	--
17...	--	11.0	17.4	3.5	5.7	77	515	--	--	--
17...	--	12.0	17.2	2.6	5.7	75	515	--	--	--
MAY										
02...	22.0	.20	17.2	8.3	6.8	86	515	.20	1.00	--
02...	--	1.0	--	--	--	--	--	--	--	1.0
02...	--	2.0	16.5	8.0	6.3	82	535	--	--	--
02...	--	4.0	16.4	7.9	6.3	82	540	--	--	--
02...	--	6.0	16.3	7.9	6.2	80	545	--	--	--
02...	--	8.0	16.2	7.8	6.1	78	545	--	--	--
02...	--	10.0	16.2	7.8	6.1	76	530	--	--	--
02...	--	12.0	16.2	7.8	6.0	76	535	--	--	--
JUNE										
05...	27.8	.20	29.0	12.5	9.0	102	460	.85	--	ND
05...	--	2.0	27.0	9.1	7.6	100	510	--	--	--
05...	--	3.0	26.4	5.1	6.9	102	525	--	--	--
05...	--	4.0	25.0	1.5	6.4	104	540	--	--	--
05...	--	5.0	24.0	.2	6.4	104	540	--	--	--
05...	--	6.0	22.3	.1	6.3	102	520	--	--	--
05...	--	8.0	19.7	.1	6.2	92	505	--	--	--
05...	--	10.0	18.9	<.1	6.3	96	495	--	--	--
05...	--	12.0	18.6	<.1	6.3	102	455	--	--	--
JUL										
12...	26.3	.20	29.3	8.7	8.6	86	485	1.00	3.00	--
12...	--	1.0	--	--	--	--	--	--	--	21
12...	--	2.0	29.3	8.3	8.4	85	480	--	--	5.0
12...	--	3.0	29.4	8.4	8.4	87	480	--	--	1.0
12...	--	4.0	28.8	5.0	6.7	87	520	--	--	--
12...	--	5.0	28.0	1.0	6.3	88	570	--	--	--
12...	--	6.0	27.6	1.4	6.1	86	575	--	--	--
12...	--	7.0	27.0	1.1	6.2	86	580	--	--	--
12...	--	9.0	26.4	<.1	6.3	89	580	--	--	--
12...	--	10.0	24.0	<.1	6.5	106	360	--	--	--
12...	--	12.0	22.9	<.1	6.6	120	255	--	--	--
AUG										
16...	29.0	.20	27.5	12.2	9.1	58	445	.70	2.00	--
16...	--	1.0	--	--	--	--	--	--	--	5.0
16...	--	2.0	26.5	11.6	8.9	61	450	--	--	1.0
16...	--	3.0	25.2	9.0	7.5	57	485	--	--	--
16...	--	4.0	21.7	5.4	6.7	56	515	--	--	--
16...	--	5.0	21.5	6.0	6.4	56	530	--	--	--
16...	--	6.0	21.0	5.6	6.2	57	540	--	--	--
16...	--	7.0	20.7	5.5	6.1	57	560	--	--	--
16...	--	8.0	20.7	5.5	6.0	57	565	--	--	--
16...	--	10.0	20.6	5.5	6.0	57	570	--	--	--
16...	--	11.0	20.5	5.5	6.0	56	570	--	--	--
29...	28.0	.20	29.5	10.9	9.1	73	460	1.10	3.00	--
29...	--	1.0	--	--	--	--	--	--	--	14
29...	--	2.0	28.5	9.1	8.7	68	480	--	--	4.0
29...	--	3.0	26.2	6.5	7.3	66	520	--	--	1.0
29...	--	4.0	25.2	6.1	7.0	63	535	--	--	--
29...	--	5.0	24.5	5.9	6.8	62	545	--	--	--
29...	--	6.0	23.6	5.2	6.6	62	555	--	--	--
29...	--	7.0	23.2	5.8	6.5	60	560	--	--	--
29...	--	8.0	23.0	5.8	6.4	60	565	--	--	--
29...	--	10.0	22.5	5.6	6.4	60	570	--	--	--
29...	--	11.0	22.5	5.6	6.3	60	580	--	--	--
OCT										
17...	10.6	.20	15.6	8.0	6.6	49	590	.50	2.00	--
17...	--	1.0	--	--	--	--	--	--	--	3.0
17...	--	2.0	15.9	7.9	6.5	60	600	--	--	1.0
17...	--	4.0	15.9	7.9	6.5	60	605	--	--	--
17...	--	6.0	15.9	7.8	6.5	60	605	--	--	--
17...	--	8.0	15.8	7.8	6.5	60	610	--	--	--
17...	--	10.0	15.9	7.8	6.5	60	605	--	--	--
NOV										
29...	13.0	.20	14.6	8.6	6.7	65	605	.70	2.00	--
29...	--	1.0	--	--	--	--	--	--	--	6.0
29...	--	2.0	14.6	8.6	6.7	66	605	--	--	1.0
29...	--	4.0	14.6	8.6	6.7	66	610	--	--	--
29...	--	6.0	14.6	8.6	6.7	66	610	--	--	--
29...	--	8.0	14.6	8.5	6.7	66	610	--	--	--
29...	--	9.0	14.6	8.5	6.7	66	610	--	--	--
29...	--	10.0	14.6	8.5	6.7	66	610	--	--	--

[illegible] Chattahoochee River at State Highway 219, near LaGrange, Ga., 1978 and 1979

DATE	TEMPERATURE, AIR (DEG C)	SAMPLING DEPTH (M)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	PH (UNITS)	SPECIFIC CONDUCTANCE (MICROMHOS)	OXIDATION REDUCTION POTENTIAL (MV)	TRANSPARENCY (SECCHI DISK) (M)	LIGHT DEPTH TO 1% OF SURFACE LIGHT (FEET)	LIGHT INCIDENT PERCENT REMAINING AT DEPTH
JAN., 1979										
24...	.0	.20	6.2	11.0	6.7	49	595	--	--	ND
24...	--	2.0	6.4	10.9	6.6	49	600	--	--	--
24...	--	4.0	6.5	10.8	6.6	49	600	--	--	--
24...	--	6.0	6.5	10.8	6.6	49	605	--	--	--
24...	--	8.0	6.5	10.8	6.5	49	605	--	--	--
24...	--	10.0	6.6	10.8	6.6	49	605	--	--	--
24...	--	11.0	6.6	10.8	6.6	49	610	--	--	--
MAR										
21...	25.7	.20	18.7	11.4	7.0	76	595	.70	2.50	--
21...	--	1.0	--	--	--	--	--	--	--	11
21...	--	2.0	17.2	9.2	6.2	76	610	--	--	2.0
21...	--	2.5	--	--	--	--	--	--	--	1.0
21...	--	4.0	16.1	8.4	6.0	77	625	--	--	--
21...	--	6.0	15.9	8.4	5.8	77	635	--	--	--
21...	--	8.0	15.4	8.0	5.8	77	640	--	--	--
21...	--	10.0	14.4	7.7	5.7	74	645	--	--	--
21...	--	11.0	14.4	7.6	5.6	74	650	--	--	--
MAY										
03...	26.0	.20	16.3	8.5	6.2	52	650	.55	2.00	ND
03...	--	2.0	16.0	8.3	6.1	52	655	--	--	--
03...	--	4.0	15.9	8.3	6.1	52	660	--	--	--
03...	--	6.0	15.9	8.3	6.0	52	660	--	--	--
03...	--	8.0	15.8	8.3	6.0	52	560	--	--	--
03...	--	10.0	15.4	8.3	6.0	52	665	--	--	--
03...	--	12.0	15.7	8.2	6.0	52	665	--	--	--
JUN										
13...	32.0	.20	23.9	9.4	6.8	59	580	.70	2.50	--
13...	--	1.0	--	--	--	--	--	--	--	17
13...	--	2.0	23.7	8.8	6.5	59	585	--	--	2.0
13...	--	2.5	--	--	--	--	--	--	--	1.0
13...	--	4.0	22.9	8.1	6.4	59	590	--	--	--
13...	--	6.0	22.3	6.9	6.0	60	600	--	--	--
13...	--	7.0	22.2	6.3	6.0	60	610	--	--	--
13...	--	8.0	21.9	5.7	5.9	61	610	--	--	--
13...	--	9.0	21.8	5.7	5.9	61	615	--	--	--
13...	--	10.0	21.8	5.1	5.8	62	620	--	--	--
13...	--	12.0	21.7	4.5	5.8	62	620	--	--	--
13...	--	14.0	21.1	3.9	5.7	64	620	--	--	--
15...	--	--	--	--	--	--	--	--	2.00	--
JUL										
26...	32.0	.20	27.0	10.5	8.9	74	505	.80	2.50	--
26...	--	1.0	--	--	--	--	--	--	--	15
26...	--	2.0	26.0	7.7	7.2	70	510	--	--	3.0
26...	--	2.5	--	--	--	--	--	--	--	1.0
26...	--	3.0	25.8	7.5	6.7	70	550	--	--	--
26...	--	4.0	25.0	5.0	6.4	69	580	--	--	--
26...	--	5.0	24.7	4.4	6.3	66	590	--	--	--
26...	--	6.0	24.6	4.3	6.3	66	595	--	--	--
26...	--	7.0	24.5	4.3	6.3	64	600	--	--	--
26...	--	8.0	24.5	4.3	6.2	64	600	--	--	--
26...	--	10.0	24.5	4.1	6.2	64	600	--	--	--
26...	--	12.0	24.4	3.8	6.1	66	600	--	--	--
27...	--	--	--	--	--	--	--	--	2.50	--
AUG										
22...	32.0	.20	30.2	11.6	9.2	83	350	.60	3.00	--
22...	--	1.0	--	--	--	--	--	--	--	24
22...	--	2.0	28.9	11.7	9.1	79	355	--	--	6.0
22...	--	3.0	27.3	5.5	6.9	74	395	--	--	1.0
22...	--	4.0	26.3	5.0	6.5	77	415	--	--	--
22...	--	5.0	26.2	3.7	6.3	76	430	--	--	--
22...	--	6.0	26.0	2.7	6.3	75	435	--	--	--
22...	--	7.0	25.9	2.9	6.2	75	445	--	--	--
22...	--	8.0	25.8	2.4	6.2	76	450	--	--	--
22...	--	10.0	25.2	2.3	6.1	76	455	--	--	--
22...	--	12.0	24.4	2.1	6.1	76	460	--	--	--
24...	--	--	--	--	--	--	--	--	3.00	--
SEP										
19...	27.0	.20	23.4	6.8	6.5	69	595	.80	--	ND
19...	--	2.0	22.2	5.6	6.7	69	585	--	--	--
19...	--	4.0	21.8	6.0	6.7	68	580	--	--	--
19...	--	6.0	21.2	6.1	6.7	67	580	--	--	--
19...	--	8.0	21.2	6.1	6.6	67	585	--	--	--
19...	--	10.0	21.1	6.0	6.6	65	580	--	--	--
19...	--	12.0	21.0	6.1	6.7	66	580	--	--	--
OCT										
18...	17.0	.20	17.3	7.5	6.5	71	535	.70	--	ND
18...	--	2.0	17.0	7.4	6.5	71	545	--	--	--
18...	--	4.0	17.0	7.1	6.4	71	550	--	--	--
18...	--	6.0	16.9	7.4	6.4	71	555	--	--	--
18...	--	8.0	16.9	7.3	6.4	71	555	--	--	--
18...	--	10.0	16.9	7.2	6.4	71	560	--	--	--
18...	--	12.0	16.9	7.0	6.4	71	560	--	--	--
DEC										
12...	21.0	.20	11.7	10.5	5.6	65	560	.60	2.00	--
12...	--	1.0	--	--	--	--	--	--	--	7.0
12...	--	2.0	11.2	9.6	6.6	66	565	--	--	1.0
12...	--	4.0	10.8	9.6	6.5	67	570	--	--	--
12...	--	6.0	10.7	9.5	6.4	67	575	--	--	--
12...	--	8.0	10.4	9.4	6.5	67	575	--	--	--
12...	--	10.0	10.2	9.2	6.4	66	580	--	--	--

CH-07 (02338720) Chattahoochee River (city of LaGrange intake) near LaGrange, Ga., 1978 and 1979

DATE	TEMPER-ATURE, AIR (DEG C)	SAM-PLING DEPTH (M)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	PH (UNITS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	OXID-ATION RED-UCTION POTEN-TIAL (MV)	TRANS-PAR-ENCY (SECCHI DISK) (M)	LIGHT DEPTH TO 1% OF SURFACE LIGHT (FEET)	LIGHT INCI-DENT PERCENT REMAIN-ING AT DEPTH
APR., 1978										
12...	18.0	.20	20.2	8.4	6.4	78	500	1.00	2.50	--
12...	--	1.0	20.0	8.0	6.4	78	480	--	--	14
12...	--	2.0	19.9	7.7	6.2	78	490	--	--	3.0
12...	--	2.5	--	--	--	--	--	--	--	1.0
12...	--	4.0	19.8	7.3	6.2	78	490	--	--	--
12...	--	6.0	19.5	6.9	6.1	77	490	--	--	--
12...	--	7.0	17.3	3.8	5.9	75	500	--	--	--
12...	--	8.0	16.2	3.6	5.9	72	495	--	--	--
12...	--	9.0	15.4	3.4	5.8	69	500	--	--	--
12...	--	10.0	14.0	3.3	5.8	64	510	--	--	--
12...	--	13.0	12.8	2.3	5.7	62	510	--	--	--
MAY										
04...	15.5	.20	17.5	7.7	6.7	94	490	.20	1.00	--
04...	--	1.0	--	--	--	--	--	--	--	1.0
04...	--	2.0	16.9	7.3	6.4	90	500	--	--	--
04...	--	4.0	16.7	7.2	6.2	84	505	--	--	--
04...	--	6.0	16.6	7.2	6.1	88	515	--	--	--
04...	--	8.0	16.6	7.2	6.0	84	520	--	--	--
04...	--	10.0	16.6	7.2	6.0	84	520	--	--	--
04...	--	12.0	16.6	7.2	6.0	94	520	--	--	--
04...	--	13.0	16.5	7.1	6.0	84	510	--	--	--
04...	--	14.0	16.5	7.1	6.0	84	520	--	--	--
JUN										
01...	29.5	.20	29.0	13.4	9.4	102	405	1.40	3.00	--
01...	--	1.0	--	--	--	--	--	--	--	20
01...	--	2.0	26.6	10.8	8.9	92	440	--	--	4.0
01...	--	3.0	26.0	8.6	7.7	90	500	--	--	1.0
01...	--	4.0	23.6	3.3	6.3	90	565	--	--	--
01...	--	5.0	22.1	2.8	6.2	86	600	--	--	--
01...	--	6.0	20.3	2.8	6.1	82	630	--	--	--
01...	--	8.0	19.1	2.9	6.1	82	600	--	--	--
01...	--	10.0	18.7	2.0	6.1	84	620	--	--	--
01...	--	12.0	18.5	1.2	6.1	88	635	--	--	--
01...	--	14.0	18.0	.2	6.1	92	640	--	--	--
JUL										
11...	26.0	.20	30.5	10.1	9.0	83	440	1.10	4.00	--
11...	--	1.0	--	--	--	--	--	--	--	31
11...	--	2.0	30.0	10.1	8.9	83	430	--	--	15
11...	--	3.0	29.4	7.8	7.5	81	480	--	--	3.0
11...	--	4.0	28.6	3.6	6.5	82	530	--	--	1.0
11...	--	5.0	28.0	2.1	6.3	82	550	--	--	--
11...	--	6.0	27.4	.9	6.2	80	555	--	--	--
11...	--	7.0	26.3	<.1	6.2	80	560	--	--	--
11...	--	8.0	25.2	<.1	6.3	83	555	--	--	--
11...	--	10.0	23.9	<.1	6.4	92	460	--	--	--
11...	--	12.0	22.8	<.1	6.7	114	145	--	--	--
11...	--	14.0	20.2	<.1	6.9	126	100	--	--	--
AUG										
17...	25.0	.20	28.6	10.6	9.1	66	505	1.60	2.50	--
17...	--	1.0	--	--	--	--	--	--	--	11
17...	--	2.0	28.5	10.4	9.0	66	495	--	--	3.0
17...	--	2.5	--	--	--	--	--	--	--	1.0
17...	--	3.0	27.6	9.2	8.5	61	510	--	--	--
17...	--	4.0	25.2	6.8	7.3	57	530	--	-	--
17...	--	5.0	22.9	5.3	6.4	56	570	--	--	--
17...	--	6.0	22.1	5.0	6.3	56	580	--	--	--
17...	--	7.0	21.6	4.9	6.2	56	590	--	--	--
17...	--	8.0	21.5	4.9	6.2	57	595	--	--	--
17...	--	10.0	21.5	4.9	6.1	57	600	--	--	--
17...	--	12.0	21.3	4.7	6.1	58	605	--	--	--
17...	--	13.0	21.2	4.6	6.1	58	610	--	--	--
29...	34.0	.20	29.9	9.9	9.1	70	445	1.00	3.00	--
29...	--	1.0	--	--	--	--	--	--	--	16
29...	--	2.0	29.0	9.4	9.0	68	455	--	--	4.0
29...	--	3.0	28.1	7.6	7.8	68	490	--	--	1.0
29...	--	4.0	27.1	6.1	7.2	70	510	--	--	--
29...	--	5.0	26.1	4.6	6.8	68	525	--	--	--
29...	--	6.0	25.2	4.6	6.6	66	540	--	--	--
29...	--	7.0	24.5	4.5	6.5	65	550	--	--	--
29...	--	8.0	24.1	4.4	6.4	64	555	--	--	--
29...	--	10.0	23.3	5.0	6.4	62	560	--	--	--
29...	--	12.0	23.1	4.9	6.3	61	570	--	--	--
OCT										
17...	15.8	.20	16.8	7.8	6.8	57	575	.70	2.00	--
17...	--	1.0	--	--	--	--	--	--	--	7.0
17...	--	2.0	16.8	7.7	6.6	58	580	--	--	1.0
17...	--	4.0	16.8	7.8	6.6	59	585	--	--	--
17...	--	6.0	16.8	7.7	6.6	60	590	--	--	--
17...	--	8.0	16.6	7.7	6.5	60	590	--	--	--
17...	--	10.0	16.7	7.6	6.5	61	595	--	--	--
NOV										
29...	13.0	.20	14.7	8.0	6.8	70	595	0	2.00	--
29...	--	1.0	--	--	--	--	--	--	--	7.0
29...	--	2.0	14.8	7.9	6.6	71	600	--	--	1.0
29...	--	4.0	14.9	7.9	6.6	72	600	--	--	--
29...	--	6.0	14.9	7.9	6.6	72	605	--	--	--
29...	--	8.0	14.9	7.9	6.6	72	610	--	--	--
29...	--	10.0	14.9	7.7	6.6	72	610	--	--	--
29...	--	11.0	14.9	7.6	6.6	72	610	--	--	--

DATE	TEMPER-ATURE, AIR (DEG C)	SAM-PLING DEPTH (M)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	PH (UNITS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	OXID-ATION RED-UCTION POTEN-TIAL (MV)	TRANS-PAR-ENCY (SECCHI DISK) (M)	LIGHT DEPTH TO 1% OF SURFACE LIGHT (FEET)	LIGHT INCI-DENT PERCENT REMAIN-ING AT DEPTH
JAN , 1979										
24...	1.0	.20	6.7	9.7	6.5	54	615	.15	--	ND
24...	--	2.0	6.7	9.7	6.4	54	615	--	--	--
24...	--	4.0	6.8	9.6	6.4	54	620	--	--	--
24...	--	6.0	6.9	9.6	6.4	54	620	--	--	--
24...	--	8.0	6.9	9.6	6.4	55	625	--	--	--
24...	--	10.0	6.9	9.6	6.4	54	625	--	--	--
24...	--	11.0	6.9	9.6	6.4	54	630	--	--	--
24...	--	12.0	6.9	9.6	6.4	55	625	--	--	--
MAR										
21...	28.2	.20	18.6	12.6	8.1	73	515	.75	2.00	--
21...	--	1.0	--	--	--	--	--	--	--	9.0
21...	--	2.0	16.8	8.2	7.1	73	545	--	--	1.0
21...	--	4.0	13.7	7.6	6.0	75	620	--	--	--
21...	--	6.0	13.4	7.3	5.8	74	635	--	--	--
21...	--	8.0	13.1	6.9	5.7	73	645	--	--	--
21...	--	10.0	12.9	6.6	5.6	73	655	--	--	--
21...	--	11.0	12.8	6.6	5.5	73	660	--	--	--
21...	--	12.0	12.7	6.4	5.5	73	665	--	--	--
MAY										
02...	31.0	.20	17.4	8.5	6.1	48	620	.45	2.00	--
02...	--	1.0	--	--	--	--	--	--	--	5.0
02...	--	2.0	16.8	8.0	6.0	48	630	--	--	1.0
02...	--	4.0	16.2	7.6	6.0	48	640	--	--	--
02...	--	6.0	16.0	7.9	5.9	49	645	--	--	--
02...	--	8.0	15.9	7.9	5.9	49	650	--	--	--
02...	--	10.0	15.9	7.8	5.9	51	650	--	--	--
02...	--	12.0	15.8	7.8	5.9	50	660	--	--	--
02...	--	14.0	15.7	7.5	5.8	50	665	--	--	--
JUN										
12...	31.0	.20	24.6	7.5	6.3	59	565	.70	2.00	--
12...	--	1.0	--	--	--	--	--	--	--	12
12...	--	2.0	24.1	7.2	6.2	60	570	--	--	1.0
12...	--	4.0	23.2	5.9	6.1	60	580	--	--	--
12...	--	5.0	23.1	5.3	6.0	60	590	--	--	--
12...	--	6.0	22.9	5.4	6.0	60	590	--	--	--
12...	--	7.0	22.7	4.7	5.9	60	600	--	--	--
12...	--	8.0	21.5	2.1	5.7	60	610	--	--	--
12...	--	10.0	20.9	1.1	5.6	62	615	--	--	--
12...	--	12.0	20.2	.6	5.6	64	615	--	--	--
12...	--	14.0	19.3	<.1	5.6	68	585	--	--	--
JUL										
26...	30.0	.20	27.0	8.5	7.5	74	560	1.00	3.00	--
26...	--	1.0	--	--	--	--	--	--	--	20
26...	--	2.0	26.9	7.9	7.2	74	560	--	--	5.0
26...	--	3.0	26.9	7.8	7.0	74	565	--	--	1.0
26...	--	4.0	26.8	7.5	6.9	74	570	--	--	--
26...	--	5.0	26.5	4.7	6.4	75	580	--	--	--
26...	--	6.0	25.6	4.0	6.2	72	590	--	--	--
26...	--	7.0	25.0	3.3	6.1	72	600	--	--	--
26...	--	8.0	24.7	2.8	6.1	72	600	--	--	--
26...	--	10.0	24.5	3.1	6.0	70	600	--	--	--
26...	--	12.0	24.4	2.7	6.0	70	630	--	--	--
26...	--	14.0	24.3	2.3	6.1	72	600	--	--	--
AUG										
22...	33.0	.20	29.6	9.7	8.3	76	370	1.00	4.00	--
22...	--	1.0	--	--	--	--	--	--	--	22
22...	--	2.0	28.9	9.2	8.5	77	380	--	--	6.0
22...	--	3.0	28.2	7.5	7.5	76	400	--	--	2.0
22...	--	4.0	27.3	4.1	6.4	76	430	--	--	1.0
22...	--	5.0	26.8	4.1	6.3	74	445	--	--	--
22...	--	6.0	26.6	3.6	6.2	74	455	--	--	--
22...	--	7.0	26.0	3.4	6.1	74	460	--	--	--
22...	--	8.0	25.6	2.8	6.0	74	470	--	--	--
22...	--	10.0	25.2	1.9	6.0	77	470	--	--	--
22...	--	12.0	24.8	1.5	5.9	77	475	--	--	--
22...	--	14.0	24.4	.8	5.9	76	475	--	--	--
22...	--	15.0	24.0	.5	5.9	76	270	--	--	--
SEP										
19...	23.0	.20	23.8	5.9	6.3	76	550	.90	--	ND
19...	--	2.0	23.6	6.3	6.5	77	555	--	--	--
19...	--	4.0	23.3	5.9	6.4	77	560	--	--	--
19...	--	6.0	23.2	5.9	6.4	77	560	--	--	--
19...	--	8.0	23.1	5.8	6.4	76	560	--	--	--
19...	--	10.0	22.9	5.7	6.4	75	565	--	--	--
19...	--	12.0	22.7	5.4	6.3	74	565	--	--	--
19...	--	14.0	22.6	5.5	6.3	74	565	--	--	--
19...	--	15.0	22.6	5.5	6.3	73	450	--	--	--
OCT										
16...	10.0	.20	17.7	6.5	6.5	74	550	.85	--	ND
16...	--	2.0	17.7	6.5	6.5	74	555	--	--	--
16...	--	4.0	17.7	6.5	6.5	74	560	--	--	--
16...	--	6.0	17.7	6.4	6.5	74	570	--	--	--
16...	--	8.0	17.7	6.3	6.5	74	570	--	--	--
16...	--	10.0	17.7	6.4	6.4	74	570	--	--	--
[illegible]...	--	12.0	17.7	6.0	6.4	73	575	--	--	--
[illegible]...	--	14.0	17.7	5.9	6.4	72	575	--	--	--
[illegible]...	--	16.0	17.6	5.8	6.3	72	580	--	--	--
DEC										
11...	20.0	.20	10.8	8.4	6.2	68	590	.57	1.50	--
11...	--	1.0	--	--	--	--	--	--	--	5.0
11...	--	1.5	--	--	--	--	--	--	--	1.0
11...	--	2.0	10.0	8.1	6.2	68	590	--	--	--
11...	--	4.0	9.5	8.2	6.1	69	595	--	--	--
11...	--	6.0	9.1	8.2	6.1	70	595	--	--	--
11...	--	8.0	8.9	8.2	6.1	71	595	--	--	--
11...	--	10.0	8.8	8.1	6.1	72	600	--	--	--
11...	--	12.0	8.8	8.0	6.1	72	600	--	--	--
11...	--	[illegible]	8.8	8.0	6.1	72	600	--	--	--

[illegible] Chattahoochee River at State Highway [illegible], near Abbottsford, Ga., 1978 and 1979

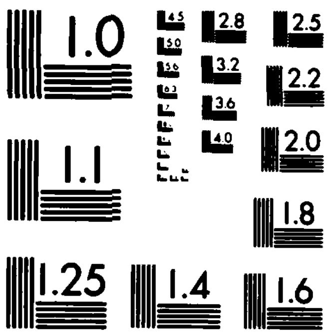
DATE	TEMPERATURE, AIR (DEG C)	SAMPLING DEPTH (M)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	PH (UNITS)	SPECIFIC CONDUCTANCE (MICROMHOS)	OXIDATION REDUCTION POTENTIAL (MV)	TRANSPARENCY (SECCHI DISK) (M)	LIGHT DEPTH TO 1% OF SURFACE LIGHT (FEET)	LIGHT INCIDENT PERCENT REMAINING AT DEPTH
APR., 1978										
12...	29.0	.20	20.0	9.3	5.9	76	509	1.30	3.50	--
12...	--	1.0	19.8	9.2	6.2	76	490	--	--	20
12...	--	2.0	20.0	9.1	6.1	76	500	--	--	6.0
12...	--	3.0	--	--	--	--	--	--	--	2.0
12...	--	3.5	--	--	--	--	--	--	--	1.0
12...	--	4.0	19.5	8.9	6.2	74	500	--	--	--
12...	--	6.0	15.5	5.2	5.7	68	505	--	--	--
12...	--	8.0	13.9	4.4	5.6	66	510	--	--	--
12...	--	10.0	12.6	3.7	5.6	63	510	--	--	--
12...	--	12.0	10.7	4.2	5.6	56	510	--	--	--
12...	--	14.0	10.6	4.1	5.6	55	515	--	--	--
12...	--	16.0	11.5	4.3	[illegible]	55	515	--	--	--
MAY										
03...	18.2	.20	18.1	9.0	6.7	58	490	.80	2.00	--
03...	--	1.0	--	--	--	--	--	--	--	8.0
03...	--	2.0	18.0	8.8	6.5	56	500	--	--	1.0
03...	--	4.0	17.8	8.6	6.5	57	505	--	--	--
03...	--	6.0	17.7	8.5	6.4	58	510	--	--	--
03...	--	8.0	17.6	8.3	6.3	58	515	--	--	--
03...	--	10.0	17.4	7.9	6.2	60	520	--	--	--
03...	--	12.0	17.0	7.5	6.2	63	525	--	--	--
03...	--	14.0	16.8	7.3	6.0	60	535	--	--	--
03...	--	16.0	16.7	7.2	6.0	63	535	--	--	--
03...	--	18.0	16.6	6.7	6.0	62	450	--	--	--
JUN										
01...	23.2	.20	26.8	8.1	9.0	64	500	1.30	4.00	--
01...	--	1.0	--	--	--	--	--	--	--	26
01...	--	2.0	26.7	7.9	6.8	64	505	--	--	8.0
01...	-	3.0	25.0	5.7	6.8	64	560	--	--	2.0
01...	--	4.0	23.4	4.4	6.4	68	595	--	--	1.0
01...	--	5.0	21.5	3.1	6.2	64	615	--	--	--
01...	--	6.0	20.2	2.8	6.2	64	640	--	--	--
01...	--	8.0	19.3	2.6	6.2	66	645	--	--	--
01...	--	10.0	19.0	2.1	6.1	68	650	--	--	--
01...	--	12.0	18.8	1.5	6.1	70	650	--	--	--
01...	--	14.0	18.4	.5	6.2	72	650	--	--	--
01...	--	16.0	17.4	.1	6.3	80	640	--	--	--
01...	--	18.0	17.5	.1	6.3	84	625	--	--	--
JUL										
11...	25.0	.20	29.2	8.9	8.7	74	470	1.30	4.00	--
11...	--	1.0	--	--	--	--	--	--	--	31
11...	--	2.0	29.6	8.7	8.6	73	470	--	--	9.0
11...	--	3.0	29.6	8.7	8.6	74	465	--	--	3.0
11...	--	4.0	29.1	4.0	6.6	77	515	--	--	1.0
11...	--	5.0	28.6	2.8	6.4	76	555	--	--	--
11...	--	6.0	28.0	.7	6.3	73	560	--	--	--
11...	--	7.0	25.8	<.1	6.3	72	565	--	--	--
11...	--	8.0	25.2	<.1	6.7	72	570	--	--	--
11...	--	10.0	23.6	<.1	6.3	76	510	--	--	--
11...	--	12.0	22.0	<.1	6.7	98	290	--	--	--
11...	--	14.0	20.4	<.1	6.8	108	--	--	--	--
11...	--	16.0	19.2	<.1	5.9	110	--	--	--	--
11...	--	18.0	14.9	<.1	6.9	112	--	--	--	--
AUG										
15...	26.7	.20	28.0	10.4	9.1	73	440	1.00	3.00	--
15...	--	1.0	--	--	--	--	--	--	--	18
15...	--	2.0	28.4	9.9	9.0	72	435	--	--	5.0
15...	--	3.0	27.8	8.2	8.3	69	460	--	--	1.0
15...	--	4.0	27.0	7.3	6.9	68	515	--	--	--
15...	--	5.0	26.6	5.2	6.6	68	540	--	--	--
15...	--	6.0	26.3	4.5	6.4	66	560	--	--	--
15...	--	7.0	25.4	3.7	6.2	65	580	--	--	--
15...	--	8.0	25.0	1.5	6.1	64	600	--	--	--
15...	--	10.0	24.3	3.3	6.0	62	605	--	--	--
15...	--	12.0	23.4	3.5	6.0	59	610	--	--	--
15...	--	14.0	23.3	3.4	6.0	59	615	--	--	--
15...	--	16.0	22.4	3.4	6.0	58	620	--	--	--
15...	--	18.0	22.7	3.3	6.0	57	620	--	--	--
16...	31.0	.20	29.8	9.0	9.0	70	485	1.00	3.00	--
16...	--	1.0	--	--	--	--	--	--	--	16
16...	--	2.0	29.8	9.0	9.0	70	470	--	--	5.0
16...	--	3.0	29.6	8.7	8.9	69	465	--	--	1.0
16...	--	4.0	29.0	6.8	8.4	67	480	--	--	--
16...	--	5.0	28.0	4.0	7.0	64	525	--	--	--
16...	--	6.0	26.6	2.4	6.3	69	565	--	--	--
16...	--	7.0	25.8	2.2	6.1	68	590	--	--	--
16...	--	8.0	25.[illegible]	1.6	6.1	59	600	--	--	--
16...	--	10.0	24.3	1.8	6.1	66	605	--	--	--
16...	--	12.0	21.[illegible]	2	6.0	66	610	--	--	--
16...	--	14.0	21.5	2.1	6.2	64	570	--	--	--
16...	--	16.0	21.5	2.2	6.1	64	580	--	--	--
16...	--	19.[illegible]	21.1	2.1	6.1	65	575	--	--	--
OCT., 1978										
18...	20.[illegible]	.20	19.[illegible]	8.2	6.3	61	555	1.00	4.00	--
18...	--	1.0	--	--	--	--	--	--	--	21
18...	--	2.0	19.8	8.2	6.8	61	560	--	--	8.0
18...	--	3.0	--	--	--	--	--	--	--	3.0
18...	--	4.0	19.5	8.2	6.3	64	560	--	--	1.0
18...	--	6.0	19.0	7.1	6.7	64	565	--	--	--
18...	--	8.0	18.8	6.6	6.6	65	570	--	--	--
18...	--	10.0	18.4	6.9	6.5	68	575	--	--	--
18...	--	12.0	18.4	6.9	6.5	68	580	--	--	--
18...	--	14.0	18.3	6.8	6.4	70	580	--	--	--
18...	--	15.0	18.1	6.7	6.4	71	585	--	--	--
NOV										
28...	14.0	.20	15.8	7.1	6.6	68	580	1.00	3.00	--
28...	--	1.0	--	--	--	--	--	--	--	10
28...	--	2.0	15.8	6.9	6.5	68	585	--	--	2.0
28...	--	3.0	--	--	--	--	--	--	--	1.0
28...	--	4.0	15.7	6.8	6.5	68	590	--	--	--
28...	--	6.0	15.7	6.7	6.5	68	595	--	--	--
28...	--	8.0	15.6	6.4	6.4	73	600	--	--	--
28...	--	10.0	15.4	6.5	6.4	75	600	--	--	--
28...	--	12.0	15.2	6.4	6.4	76	600	--	--	--
28...	--	14.0	15.2	6.1	6.5	78	605	--	--	--

02-05A [illegible] [illegible] River at State Highway [illegible], near Abbottsford, [illegible] 1978 and 1979

DATE	TEMPER-ATURE, AIR (DEG C)	SAM-PLING DEPTH (M)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	PH (UNITS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	OXID-ATION RED-UCTION POTEN-TIAL (MV)	TRANS-PAR-ENCY (SECCHI DISK) (M)	LIGHT DEPTH TO 1% OF SURFACE LIGHT (FEET)	LIGHT INCI-DENT PERCENT REMAIN-ING AT DEPTH
JAN., 1979										
23...	11.0	.20	7.1	10.0	6.4	65	580	.55	--	50
23...	--	2.0	7.1	10.0	6.9	76	580	--	--	--
23...	--	4.0	7.1	9.9	6.8	76	580	--	--	--
23...	--	6.0	7.0	9.9	6.8	75	585	--	--	--
23...	--	8.0	7.0	9.9	6.8	77	585	--	--	--
23...	--	10.0	6.8	9.9	6.8	76	590	--	--	--
23...	--	12.0	6.7	9.8	6.8	76	580	--	--	--
23...	--	14.0	6.6	9.8	6.8	76	580	--	--	--
MAR										
20...	24.9	.20	14.9	12.2	8.0	67	520	.60	1.50	--
20...	--	1.0	--	--	--	--	--	--	--	6.0
20...	--	1.5	--	--	--	--	--	--	--	1.0
20...	--	2.0	14.9	9.3	6.5	66	570	--	--	--
20...	--	4.0	13.3	8.1	6.2	67	605	--	--	--
20...	--	6.0	13.0	7.9	6.0	66	620	--	--	--
20...	--	8.0	12.8	7.6	5.9	65	630	--	--	--
20...	--	10.0	12.6	7.5	5.8	64	640	--	--	--
20...	--	12.0	12.5	7.3	5.7	64	645	--	--	--
20...	--	14.0	12.3	6.9	5.7	63	650	--	--	--
20...	--	15.0	12.2	6.9	5.6	63	650	--	--	--
20...	--	16.0	11.9	6.2	5.6	61	655	--	--	--
MAY										
01...	26.0	.20	20.2	9.3	6.5	47	585	.40	1.50	--
01...	--	1.0	--	--	--	--	--	--	--	4.0
01...	--	1.5	--	--	--	--	--	--	--	1.0
01...	--	2.0	18.1	8.4	6.2	48	610	--	--	--
01...	--	4.0	17.2	7.4	6.0	49	620	--	--	--
01...	--	6.0	16.8	7.3	5.9	49	630	--	--	--
01...	--	8.0	16.7	7.2	5.8	49	635	--	--	--
01...	--	10.0	16.6	7.2	5.8	49	640	--	--	--
01...	--	12.0	16.5	7.0	5.8	50	645	--	--	--
01...	--	14.0	16.5	6.9	5.8	50	650	--	--	--
01...	--	16.0	16.4	6.8	5.8	50	655	--	--	--
JUN										
12...	27.0	.20	24.7	7.3	6.3	59	580	1.00	2.30	--
12...	--	1.0	--	--	--	--	--	--	--	16
12...	--	2.0	24.4	7.0	6.3	59	585	--	--	3.0
12...	--	2.3	--	--	--	--	--	--	--	1.0
12...	--	4.0	24.1	6.7	6.3	59	585	--	--	--
12...	--	6.0	23.1	3.9	6.2	61	595	--	--	--
12...	--	7.0	21.2	2.8	5.9	62	605	--	--	--
12...	--	8.0	20.8	2.3	5.8	61	610	--	--	--
12...	--	9.0	20.5	2.0	5.7	62	615	--	--	--
12...	--	10.0	20.4	1.9	5.7	63	615	--	--	--
12...	--	12.0	19.2	.3	5.7	64	615	--	--	--
12...	--	14.0	18.3	<.1	5.7	60	440	--	--	--
12...	--	16.0	18.0	<.1	5.6	58	410	--	--	--
12...	--	18.0	17.9	<.1	5.6	58	385	--	--	--
15...	--	--	--	--	--	--	--	--	3.50	--
JUL										
25...	13.0	.20	27.5	8.5	8.5	74	450	1.20	4.00	--
25...	--	1.0	--	--	--	--	--	--	--	28
25...	--	2.0	27.5	8.3	8.3	74	440	--	--	9.0
25...	--	3.0	27.4	8.1	8.1	74	450	--	--	3.0
25...	--	4.0	27.4	8.0	8.0	74	455	--	--	1.0
25...	--	5.0	27.4	7.8	7.8	74	465	--	--	--
25...	--	6.0	27.4	7.7	7.6	74	470	--	--	--
25...	--	7.0	26.9	4.3	6.6	77	485	--	--	--
25...	--	8.0	25.1	9	6.2	80	510	--	--	--
25...	--	10.0	23.9	.1	6.1	84	520	--	--	--
25...	--	12.0	23.5	<.1	6.1	85	515	--	--	--
25...	--	14.0	23.4	<.1	6.0	88	505	--	--	--
25...	--	16.0	22.6	<.1	6.2	92	400	--	--	--
27...	--	--	--	--	--	--	--	--	4.00	--
AUG										
22...	30.0	.20	29.2	9.2	8.6	75	425	1.10	4.00	--
22...	--	1.0	--	--	--	--	--	--	--	32
22...	--	2.0	28.6	7.4	8.2	73	440	--	--	9.0
22...	--	3.0	27.9	4.5	6.9	74	450	--	--	1.0
22...	--	4.0	27.6	4.1	6.6	75	460	--	--	1.0
22...	--	5.0	27.6	3.8	6.4	75	465	--	--	--
22...	--	6.0	27.4	3.3	6.3	76	470	--	--	--
22...	--	7.0	27.3	2.6	6.2	76	475	--	--	--
22...	--	8.0	27.0	1.5	6.1	76	480	--	--	--
22...	--	10.0	25.6	.5	6.0	75	485	--	--	--
22...	--	12.0	25.1	.5	6.0	75	410	--	--	--
22...	--	14.0	24.5	.5	6.	75	270	--	--	--
22...	--	16.0	24.0	.5	6.0	75	260	--	--	--
22...	--	18.0	23.6	.5	6.0	73	270	--	--	--
24...	--	--	--	--	--	--	--	--	4.00	--

AD-A149 942 WATER QAALITY MANAGEMENT STUDIES WEST POINT LAKE CHATTAHOOCHEE RIVER ALAB..(U) CORPS OF ENGINEERS MOBILE AL MOBILE DISTRICT D B RADTKE ET AL. AUG 84 3/6

UNCLASSIFIED COESAM/PDEE-84/004 F/G 8/8 NL



MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

CH-05A (02339190) Chattahoochee River at State Highway 701, near Abbottsford, Ga., 1978 and 1979

DATE	TEMPER-ATURE, AIR (DEG C)	SAM-PLING DEPTH (M)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	PH (UNITS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	OXIDA-ATION RED-UCTION POTEN-TIAL (MV)	TRANS-PAR-ENCY (SECCHI DISK) (M)	LIGHT DEPTH TO 1% OF SURFACE LIGHT (FEET)	LIGHT INCI-DENT PERCENT REMAIN-ING AT DEPTH
SEP										
18...	22.0	.20	24.4	5.6	6.4	67	600	--	--	ND
18...	--	2.0	24.2	5.5	6.4	67	595	--	--	--
18...	--	4.0	24.2	5.3	6.4	67	590	--	--	--
18...	--	6.0	24.2	5.3	6.4	67	590	--	--	--
18...	--	8.0	24.2	5.1	6.3	67	590	--	--	--
18...	--	10.0	24.2	5.1	6.3	67	590	--	--	--
18...	--	12.0	24.2	5.0	6.3	67	590	--	--	--
18...	--	14.0	24.1	4.9	6.3	67	590	--	--	--
18...	--	16.0	24.1	4.8	6.3	67	590	--	--	--
18...	--	18.0	23.9	.9	6.1	73	535	--	--	--
18...	--	19.0	23.7	.7	6.2	83	260	--	--	--
OCT										
16...	24.0	.20	19.4	7.7	6.7	68	545	1.10	--	ND
16...	--	2.0	19.2	7.6	6.6	68	550	--	--	--
16...	--	4.0	19.0	7.3	6.6	68	555	--	--	--
16...	--	6.0	19.0	7.2	6.5	68	560	--	--	--
16...	--	8.0	19.0	7.1	6.5	69	560	--	--	--
16...	--	10.0	18.9	7.1	6.5	69	565	--	--	--
16...	--	12.0	18.8	6.8	6.4	69	570	--	--	--
16...	--	14.0	18.4	6.5	6.4	69	570	--	--	--
16...	--	16.0	18.2	6.2	6.3	70	575	--	--	--
16...	--	18.0	18.1	6.0	6.3	70	575	--	--	--
DEC										
13...	15.0	.20	10.0	9.5	6.4	73	585	.80	2.50	--
13...	--	1.0	--	--	--	--	--	--	--	10
13...	--	2.0	9.9	9.3	6.4	73	590	--	--	2.0
13...	--	2.5	--	--	--	--	--	--	--	1.0
13...	--	4.0	9.7	9.2	6.3	73	590	--	--	--
13...	--	6.0	9.6	9.2	6.3	73	590	--	--	--
13...	--	8.0	9.4	8.9	6.3	74	590	--	--	--
13...	--	10.0	9.3	8.9	6.3	74	595	--	--	--
13...	--	12.0	9.3	8.9	6.3	74	595	--	--	--
13...	--	14.0	9.3	8.9	6.3	74	595	--	--	--
13...	--	16.0	9.3	8.8	6.3	74	595	--	--	--

CH-03A (02339382) Chattahoochee River above coffer dam, above West Point Dam, 1978 and 1979

DATE	TEMPER-ATURE, AIR (DEG C)	SAM-PLING DEPTH (M)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	PH (UNITS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	OXID-ATION RED-UCTION POTEN-TIAL (MV)
APR., 1978							
11...	22.0	.20	18.0	11.4	8.3	58	440
11...	--	2.0	16.0	8.5	6.9	59	450
11...	--	4.0	14.0	8.3	6.6	58	465
11...	--	6.0	13.0	8.8	6.5	58	480
11...	--	8.0	12.2	8.4	6.3	58	490
11...	--	10.0	11.1	7.7	6.2	55	500
11...	--	12.0	10.2	7.3	6.1	55	505
11...	--	14.0	9.9	6.8	6.1	55	495
11...	--	16.0	9.5	6.6	6.1	55	490
MAY							
14...	23.4	.20	20.0	8.1	6.5	57	480
14...	--	2.0	20.0	8.1	6.4	60	480
14...	--	4.0	19.9	7.9	6.3	58	490
14...	--	6.0	19.9	7.8	6.1	58	500
14...	--	8.0	19.5	7.0	5.9	57	510
14...	--	10.0	18.1	5.0	5.8	58	510
14...	--	12.0	17.4	4.9	5.7	56	515
14...	--	14.0	17.0	4.2	5.6	56	520
14...	--	16.0	16.5	3.5	5.6	54	525
14...	--	18.0	15.7	2.1	5.5	56	525
31...	21.5	.20	26.2	8.5	9.0	64	470
31...	--	2.0	26.2	8.5	8.9	64	475
31...	--	3.0	25.3	7.9	8.3	66	500
31...	--	4.0	22.5	5.8	6.9	64	540
31...	--	5.0	21.0	3.4	6.4	64	560
31...	--	6.0	21.0	2.5	6.4	64	555
31...	--	8.0	20.0	3.0	6.3	64	570
31...	--	10.0	19.4	2.5	6.3	64	580
31...	--	12.0	18.3	1.2	6.2	64	590
31...	--	14.0	17.6	.6	6.1	64	600
31...	--	16.0	17.0	.3	6.1	68	600
JUL							
10...	26.2	.20	29.7	8.5	9.0	65	365
10...	--	2.0	29.9	8.5	8.9	65	370
10...	--	3.0	29.6	8.4	8.9	64	375
10...	--	4.0	29.0	8.5	8.9	64	380
10...	--	5.0	28.0	5.8	7.2	60	420
10...	--	6.0	28.0	1.6	6.4	62	445
10...	--	7.0	26.5	.3	6.3	63	460
10...	--	8.0	25.0	<.1	6.3	66	460
10...	--	10.0	23.3	<.1	6.2	64	460
10...	--	12.6	20.9	<.1	6.3	62	450
10...	--	14.0	19.5	<.1	6.3	66	415
10...	--	16.0	19.0	<.1	6.4	70	330
10...	--	18.0	18.3	<.1	6.5	77	240
AUG							
14...	25.0	.20	27.5	6.1	7.0	65	560
14...	--	2.0	27.5	6.0	6.9	65	565
14...	--	3.0	27.5	6.0	6.9	66	565
14...	--	4.0	27.5	6.0	6.9	66	565
14...	--	5.0	27.5	5.9	6.9	66	570
14...	--	6.0	27.5	5.9	6.9	66	570
14...	--	7.0	27.5	4.3	6.7	67	575
14...	--	8.0	27.2	.3	6.3	70	590
14...	--	10.0	26.2	.1	6.1	73	600
14...	--	12.0	25.0	<.1	6.1	73	605
14...	--	14.0	24.5	<.1	6.1	74	605
14...	--	16.0	24.0	<.1	6.1	98	440
30...	27.0	.20	28.5	8.5	8.3	69	535
30...	--	2.0	28.5	8.3	8.3	69	520
30...	--	3.0	28.5	5.9	7.4	68	535
30...	--	4.0	28.2	1.1	6.8	69	550
30...	--	5.0	27.5	.1	6.3	70	575
30...	--	6.0	27.0	<.1	6.2	70	585
30...	--	7.0	26.5	<.1	6.2	70	595
30...	--	8.0	25.0	<.1	6.1	67	600
30...	--	10.0	24.0	<.1	6.0	64	605
30...	--	12.0	23.8	<.1	6.0	62	610
30...	--	14.0	23.1	<.1	6.0	62	610
30...	--	16.0	22.6	<.1	6.0	62	610
OCT							
16...	19.0	.20	20.8	6.7	6.8	67	530
16...	--	2.0	20.7	6.5	6.7	67	540
16...	--	4.0	20.7	6.2	6.7	68	545
16...	--	6.0	20.6	6.0	6.7	68	550
16...	--	8.0	20.6	6.0	6.6	68	555
16...	--	10.0	20.6	5.3	6.6	68	560
16...	--	12.0	20.4	4.1	6.4	66	570
16...	--	14.0	20.0	3.7	6.3	66	575
NOV							
20...	14.0	.20	16.0	6.3	6.7	60	560
20...	--	2.0	16.2	6.2	6.5	61	570
20...	--	4.0	16.3	6.1	6.4	61	575
20...	--	6.0	16.2	6.1	6.3	60	580
20...	--	8.0	16.2	6.0	6.3	61	580
20...	--	10.0	16.2	5.9	6.3	60	585
20...	--	12.0	16.1	5.8	6.3	60	590
20...	--	14.0	16.1	5.9	6.2	60	590

DATE	TEMPERATURE, AIR (DEG C)	SAMPLING DEPTH (M)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	PH (UNITS)	SPECIFIC CONDUCTANCE (MICROMHOS)	OXIDATION REDUCTION POTENTIAL (MV)
JAN . 1979							
22...	5.0	.20	6.8	9.7	6.4	78	600
22...	--	2.0	6.8	9.6	6.4	78	605
22...	--	4.0	6.8	9.6	6.3	78	610
22...	--	6.0	6.7	9.6	6.2	79	615
22...	--	8.0	6.6	9.5	6.2	79	615
22...	--	10.0	6.6	9.5	6.2	79	620
22...	--	12.0	6.6	9.5	6.1	79	620
22...	--	14.0	6.6	9.5	6.1	79	625
22...	--	16.0	6.6	9.5	6.1	79	625
MAR							
20...	28.0	.20	19.2	12.0	8.1	50	525
20...	--	2.0	15.9	10.8	6.8	50	555
20...	--	4.0	13.6	8.8	6.2	51	580
20...	--	6.0	12.8	8.5	6.1	52	600
20...	--	8.0	12.6	8.3	5.9	51	610
20...	--	10.0	12.5	8.9	5.9	54	620
20...	--	12.0	11.7	8.2	5.8	56	625
20...	--	14.0	10.2	7.0	5.6	58	640
20...	--	16.0	9.5	6.3	5.5	58	645
20...	--	18.0	9.3	5.8	5.5	60	655
20...	--	20.0	9.1	5.1	5.4	63	660
20...	--	21.0	9.0	5.1	5.4	63	665
20...	--	22.0	9.0	5.2	5.3	63	665
MAY							
01...	23.0	.20	20.5	10.2	7.1	44	590
01...	--	2.0	20.5	10.0	7.1	44	595
01...	--	4.0	18.2	7.9	6.5	45	615
01...	--	6.0	17.7	7.5	6.0	45	635
01...	--	8.0	17.6	7.7	5.9	45	645
01...	--	10.0	17.5	7.8	5.9	46	650
01...	--	12.0	17.2	7.5	5.8	46	655
01...	--	14.0	16.7	5.8	5.6	47	665
01...	--	16.0	16.4	5.0	5.5	48	670
01...	--	18.0	16.1	4.0	5.5	49	670
01...	--	20.0	16.0	3.7	5.5	50	670
01...	--	22.0	15.7	2.3	5.5	52	670
JUN							
14...	25.0	.20	25.2	8.3	8.3	56	480
14...	--	2.0	25.2	8.3	8.3	57	485
14...	--	4.0	25.2	8.2	8.2	57	490
14...	--	6.0	25.2	8.2	8.1	57	495
14...	--	8.0	25.1	8.0	7.9	57	500
14...	--	10.0	23.2	4.6	6.4	59	540
14...	--	11.0	22.3	3.2	5.8	59	570
14...	--	12.0	21.4	2.6	5.7	61	585
14...	--	14.0	20.0	1.1	5.5	63	600
14...	--	16.0	18.6	<.1	5.4	62	610
14...	--	18.0	18.1	<.1	5.4	62	520
14...	--	20.0	17.6	<.1	5.4	64	400
14...	--	22.0	17.3	<.1	5.5	68	335
14...	--	20.0	17.6	<.1	5.4	64	400
JUL							
24...	27.0	.20	27.3	7.3	8.1	56	465
24...	--	2.0	27.3	7.2	8.1	56	500
24...	--	3.0	26.5	4.0	6.9	58	535
24...	--	4.0	26.0	3.1	7.0	59	550
24...	--	5.0	25.5	1.9	6.9	63	560
24...	--	6.0	25.3	1.6	6.9	64	565
24...	--	7.0	25.0	1.2	6.7	64	570
24...	--	8.0	24.8	.7	6.6	62	550
24...	--	10.0	23.9	<.1	6.6	64	545
24...	--	12.0	22.9	<.1	6.6	70	535
24...	--	14.0	21.8	<.1	6.7	74	440
24...	--	16.0	21.0	<.1	6.9	79	260
24...	--	18.0	20.4	<.1	6.9	82	170
24...	--	20.0	20.0	<.1	6.9	88	110
24...	--	22.0	19.6	<.1	7.0	93	85.0

DATE	TEMPER-ATURE, AIR (DEG C)	SAM-PLING DEPTH (M)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	PH (UNITS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	OXID-ATION RED-UCTION POTEN-TIAL (MV)
AUG . 1979							
21...	34.6	.20	30.3	7.2	8.4	68	315
21...	--	2.0	29.4	7.4	8.5	68	320
21...	--	3.0	28.9	7.9	8.6	67	335
21...	--	4.0	28.3	7.6	8.3	65	350
21...	--	5.0	28.0	6.0	7.7	64	360
21...	--	6.0	27.8	6.0	7.1	64	380
21...	--	7.0	27.7	5.3	6.9	67	390
21...	--	8.0	27.5	5.1	6.8	68	395
21...	--	10.0	27.2	3.9	6.5	69	400
21...	--	12.0	25.8	.7	6.1	71	195
21...	--	14.0	24.[illegible]	.6	6.0	80	200
21...	--	16.0	[illegible].3	.6	6.2	91	145
21...	--	18.0	22.8	.5	6.2	96	120
21...	--	20.0	22.0	.5	6.2	100	100
21...	--	22.0	21.5	.5	6.3	105	90.0
21...	--	24.0	20.6	.5	6.3	112	80.0
SEP							
17...	19.0	.20	25.3	5.6	6.7	72	510
17...	--	2.0	25.3	5.6	6.7	72	510
17...	--	4.0	25.3	5.5	6.7	72	515
17...	--	6.0	25.3	5.5	6.7	73	515
17...	--	8.0	25.3	5.4	6.7	72	520
17...	--	10.0	25.3	4.8	6.7	72	520
17...	--	12.0	25.3	4.7	6.6	73	520
17...	--	14.0	25.2	4.1	6.5	73	525
17...	--	16.0	24.6	.9	6.2	77	520
17...	--	18.0	23.9	.7	6.1	79	480
17...	--	20.0	23.7	.7	6.1	79	450
17...	--	22.0	23.3	.6	6.2	88	270
17...	--	24.0	22.3	.7	6.4	116	180
OCT							
15...	23.0	.20	20.9	6.8	6.8	70	550
15...	--	2.0	20.5	6.2	6.6	71	560
15...	--	4.0	20.4	5.8	6.5	71	560
15...	--	6.0	20.4	5.7	6.5	71	560
15...	--	8.0	20.4	5.7	6.5	71	565
15...	--	10.0	20.4	5.9	6.5	71	565
15...	--	12.0	20.4	5.7	6.5	71	570
15...	--	14.0	20.3	5.7	6.5	71	570
15...	--	16.0	20.0	5.2	6.4	71	575
15...	--	18.0	19.8	3.9	6.2	71	580
15...	--	20.0	19.7	3.6	6.1	72	580
15...	--	22.0	19.6	3.4	6.1	72	585
15...	--	23.0	19.6	3.4	6.1	72	585
15...	--	24.0	19.6	3.3	6.1	72	585
DEC							
10...	20.5	.20	12.3	7.7	6.4	66	565
10...	--	2.0	11.9	7.4	6.3	67	575
10...	--	4.0	11.7	7.1	6.2	67	580
10...	--	6.0	11.6	7.0	6.2	67	585
10...	--	8.0	11.6	7.0	6.2	67	585
10...	--	10.0	11.6	7.0	6.2	68	590
10...	--	12.0	11.6	6.9	6.2	67	590
10...	--	14.0	11.5	6.8	6.1	67	590
10...	--	16.0	11.2	6.5	6.1	67	595
10...	--	18.0	10.9	6.4	6.1	66	595
10...	--	20.0	10.9	6.4	6.1	66	595
10...	--	22.0	10.9	6.4	6.1	67	600

CH-038 (02339387) Chattahoochee River east of coffer dam, above West Point Dam, 1978 and 1979

DATE	TEMPER-ATURE, AIR (DEG C)	SAM-PLING DEPTH (M)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	PH (UNITS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	OXID-ATION REO-UCTION POTEN-TIAL (MV)
APR . 1978							
11...	26.0	.20	17.7	11.2	8.4	56	445
11...	--	2.0	15.8	8.2	6.9	58	460
11...	--	4.0	14.1	8.1	6.8	56	470
11...	--	6.0	13.2	8.2	6.7	58	475
11...	--	8.0	12.3	8.4	6.6	58	480
11...	--	12.0	10.8	7.5	6.5	56	490
11...	--	16.0	9.8	6.0	6.3	56	500
MAY							
14...	23.4	.20	20.0	9.0	6.8	58	465
14...	--	2.0	20.0	8.7	6.6	57	470
14...	--	4.0	20.0	8.3	6.6	56	480
14...	--	6.0	19.9	7.7	6.1	56	500
14...	--	8.0	19.5	7.2	6.2	60	495
14...	--	10.0	18.0	5.1	5.8	58	505
14...	--	12.0	17.4	5.0	5.8	56	515
14...	--	14.0	17.0	4.3	5.6	54	520
14...	--	16.0	16.5	3.5	5.6	55	525
14...	--	18.0	16.0	2.4	5.6	56	530
31...	21.5	.20	26.0	8.5	9.0	68	465
31...	--	2.0	26.0	8.8	8.9	68	475
31...	--	3.0	25.4	8.6	8.7	68	485
31...	--	4.0	23.1	6.6	6.8	68	535
31...	--	5.0	21.2	3.2	6.2	68	570
31...	--	6.0	21.0	2.7	6.2	66	565
31...	--	8.0	20.0	2.9	6.3	66	575
31...	--	10.0	19.4	2.7	6.2	68	585
31...	--	12.0	18.4	1.5	6.1	68	595
31...	--	14.0	17.6	.7	6.1	68	600
31...	--	16.0	17.2	.3	6.1	68	605
JUL							
10...	27.0	.20	30.0	8.4	8.9	63	360
10...	--	2.0	30.0	8.4	8.9	63	365
10...	--	3.0	29.8	8.6	8.9	62	370
10...	--	4.0	29.3	8.7	8.9	62	375
10...	--	5.0	28.4	5.1	6.9	61	415
10...	--	6.0	28.0	2.2	6.3	63	425
10...	--	7.0	26.5	.2	6.2	63	430
10...	--	8.0	25.1	<.1	6.2	66	430
10...	--	10.0	23.4	<.1	6.2	66	435
10...	--	12.0	21.1	<.1	6.2	63	415
10...	--	14.0	19.6	<.1	6.3	66	385
10...	--	16.0	18.9	<.1	6.4	71	310
10...	--	18.0	18.3	<.1	6.5	78	240
AUG							
14...	25.7	.20	27.8	6.5	7.1	64	520
14...	--	2.0	27.3	6.4	7.0	68	520
14...	--	3.0	27.2	6.0	6.9	68	525
14...	--	4.0	27.2	6.0	6.9	68	530
14...	--	5.0	27.2	5.7	6.8	68	535
14...	--	6.0	27.1	5.5	6.7	69	540
14...	--	7.0	27.0	3.7	6.4	70	550
14...	--	8.0	26.9	.6	6.2	70	560
14...	--	10.0	25.5	.1	6.0	74	565
14...	--	12.0	24.7	<.1	6.0	74	565
14...	--	14.0	24.2	<.1	6.0	74	565
14...	--	16.0	23.7	<.1	6.1	80	440
30...	26.0	.20	28.5	8.1	8.1	69	570
30...	--	2.0	28.6	8.0	8.1	68	550
30...	--	3.0	28.6	6.3	7.3	68	565
30...	--	4.0	28.4	3.1	6.7	.7	580
30...	--	5.0	27.8	.1	6.4	70	605
30...	--	6.0	27.3	<.1	6.2	70	615
30...	--	7.0	26.7	<.1	6.2	70	620
30...	--	8.0	26.0	<.1	6.1	67	630
30...	--	10.0	24.9	<.1	6.0	64	640
30...	--	12.0	24.8	<.1	6.0	63	640
30...	--	14.0	23.1	<.1	6.0	62	640
30...	--	16.0	22.7	.0	6.0	62	640
OCT							
16...	16.5	.20	20.6	6.7	6.8	68	565
16...	--	2.0	20.6	6.6	6.7	68	570
16...	--	4.0	20.7	6.3	6.7	68	570
16...	--	6.0	20.6	6.2	6.7	68	570
16...	--	8.0	20.7	6.1	6.6	68	575
16...	--	10.0	20.7	6.1	6.6	68	580
16...	--	12.0	20.2	3.7	6.4	66	580
16...	--	14.0	20.0	3.7	6.3	66	590
16...	--	16.0	19.5	4.2	6.3	66	595
16...	--	18.0	19.3	4.4	6.3	66	600
16...	--	20.0	19.2	4.5	6.3	65	600
NOV							
20...	14.0	.20	16.0	6.1	6.6	61	505
20...	--	2.0	16.3	6.1	6.4	61	520
20...	--	4.0	16.3	6.1	6.4	61	530
20...	--	6.0	16.3	6.0	6.5	60	545
20...	--	8.0	16.3	6.0	6.4	60	550
20...	--	10.0	16.3	6.0	6.3	60	560
20...	--	12.0	16.4	6.0	6.3	60	570
20...	--	14.0	16.3	5.0	6.3	61	580

CH-03B (02339387) Chattahoochee River east of coffer dam, above West Point Dam, 1978 and 1979

DATE	TEMPER-ATURE, AIR (DEG C)	SAM-PLING DEPTH (M)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	PH (UNITS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	OXID-ATION RED-UCTION POTEN-TIAL (MV)
JAN , 1979							
22...	6.5	.20	6.9	9.9	6.5	77	585
22...	--	2.0	6.9	9.8	6.4	77	590
22...	--	4.0	6.9	9.8	6.3	77	595
22...	--	6.0	6.9	9.8	6.3	77	600
22...	--	8.0	6.8	9.9	6.2	76	605
22...	--	10.0	6.8	9.9	6.2	76	610
22...	--	12.0	6.8	9.9	6.2	76	610
22...	--	14.0	6.8	9.9	6.1	76	615
22...	--	16.0	6.8	9.9	6.1	76	620
22...	--	18.0	6.8	9.9	6.1	76	620
22...	--	19.0	6.8	9.9	6.0	76	620
22...	--	20.0	6.8	9.9	6.0	76	625
MAR							
20...	28.0	.20	19.5	12.3	8.2	51	580
20...	--	2.0	14.9	10.3	6.5	51	595
20...	--	4.0	13.6	9.0	6.1	52	615
20...	--	6.0	12.9	8.6	5.9	52	630
20...	--	8.0	12.6	8.4	5.8	52	640
20...	--	10.0	12.5	8.9	5.7	53	650
20...	--	12.0	11.6	8.1	5.7	58	655
20...	--	14.0	11.3	8.2	5.6	58	660
20...	--	16.0	9.7	6.6	5.5	60	665
20...	--	18.0	9.4	6.3	5.4	59	670
20...	--	20.0	9.2	5.9	5.3	60	675
MAY							
01...	23.0	.20	20.6	10.2	7.4	44	565
01...	--	2.0	20.3	10.1	7.2	44	570
01...	--	4.0	18.7	8.7	6.5	44	600
01...	--	6.0	17.8	7.7	6.0	45	620
01...	--	8.0	17.7	7.6	5.9	45	640
01...	--	10.0	17.6	7.6	5.8	46	645
01...	--	12.0	17.4	7.8	5.9	46	650
01...	--	14.0	16.7	5.8	5.7	47	660
01...	--	16.0	16.4	4.9	5.5	47	665
01...	--	18.0	16.1	3.9	5.5	49	670
01...	--	20.0	15.9	3.2	5.5	50	670
01...	--	22.0	15.7	2.3	5.4	53	670
01...	--	23.0	15.1	1.0	5.5	61	515
JUN							
14...	28.0	.20	25.4	8.6	8.5	55	480
14...	--	2.0	25.3	8.6	8.4	55	485
14...	--	4.0	25.3	8.5	8.4	55	485
14...	--	6.0	25.2	8.4	8.3	55	490
14...	--	8.0	25.2	8.0	7.7	55	500
14...	--	9.0	24.1	5.8	6.6	57	530
14...	--	10.0	23.1	4.6	6.1	57	555
14...	--	11.0	21.8	2.9	5.8	57	580
14...	--	12.0	21.7	2.5	5.6	58	595
14...	--	14.0	19.7	1.2	5.4	60	605
14...	--	16.0	18.4	<.1	5.4	59	610
14...	--	18.0	18.1	<.1	5.4	59	550
14...	--	20.0	17.8	<.1	5.4	60	465
14...	--	22.0	17.3	<.1	5.4	65	380
14...	--	24.0	17.1	<.1	5.5	69	325
JUL							
24...	30.0	.20	27.2	7.2	7.8	56	515
24...	--	2.0	27.2	7.1	7.5	56	520
24...	--	3.0	26.4	4.2	7.4	59	555
24...	--	4.0	25.8	2.8	7.2	60	585
24...	--	5.0	25.6	2.2	7.0	61	585
24...	--	6.0	25.2	1.5	6.8	61	560
24...	--	7.0	25.0	1.0	6.6	61	545
24...	--	8.0	24.7	.7	6.5	61	550
24...	--	10.0	24.1	<.1	6.2	62	540
24...	--	12.0	22.6	<.1	6.2	68	545
24...	--	14.0	22.2	<.1	6.1	66	545
24...	--	16.0	21.0	<.1	6.3	76	290
24...	--	18.0	20.2	<.1	6.6	82	150
24...	--	20.0	19.5	<.1	6.7	92	95.0
24...	--	22.0	18.5	<.1	6.8	106	60.0

CH-038 (02339387) Chattahoochee River east of coffer dam, above West Point Dam, 1978 and 1979

DATE	TEMPER-ATURE, AIR (DEG C)	SAM-PLING DEPTH (M)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	PH (UNITS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	OXID-ATION RED-UCTION POTEN-TIAL (MV)
AUG							
21...	34.5	.20	30.5	8.3	8.3	68	415
21...	--	2.0	29.6	8.7	8.4	67	415
21...	--	3.0	28.8	8.8	8.5	67	415
21...	--	4.0	28.4	8.4	8.4	66	420
21...	--	5.0	28.1	7.7	8.0	65	425
21...	--	6.0	27.9	6.2	7.1	63	440
21...	--	7.0	27.8	6.5	7.0	66	450
21...	--	8.0	27.6	5.7	6.8	68	460
21...	--	10.0	27.3	4.5	6.5	69	465
21...	--	12.0	25.9	.5	6.1	75	480
21...	--	14.0	24.7	.5	6.0	78	455
21...	--	16.0	24.0	.5	6.1	86	185
21...	--	18.0	22.7	.5	6.2	92	130
21...	--	20.0	22.2	.5	6.3	102	100
21...	--	22.0	21.4	.5	6.3	106	90.0
SEP							
17...	19.0	.20	25.3	5.7	6.8	72	530
17...	--	2.0	25.3	5.6	6.7	72	530
17...	--	4.0	25.3	5.6	6.7	72	530
17...	--	6.0	25.3	5.6	6.7	72	535
17...	--	8.0	25.3	5.6	6.7	72	535
17...	--	10.0	25.3	5.6	6.7	74	535
17...	--	12.0	25.3	5.5	6.7	73	540
17...	--	14.0	25.3	5.2	6.7	73	540
17...	--	16.0	24.5	.7	6.2	73	500
17...	--	18.0	23.9	.7	6.1	78	475
17...	--	20.0	23.7	.7	6.1	79	455
17...	--	22.0	23.2	.6	6.3	97	175
OCT							
15...	23.0	.20	21.2	7.2	6.7	70	535
15...	--	2.0	20.7	6.3	6.6	70	540
15...	--	4.0	20.6	6.2	6.5	70	545
15...	--	6.0	20.5	6.1	6.5	70	550
15...	--	8.0	20.5	6.1	6.5	70	550
15...	--	10.0	20.5	6.1	6.4	70	550
15...	--	12.0	20.4	6.1	6.4	70	555
15...	--	14.0	20.5	6.0	6.4	70	560
15...	--	16.0	20.2	5.2	6.3	71	560
15...	--	18.0	19.8	3.9	6.2	71	565
15...	--	20.0	19.8	3.8	6.1	71	570
15...	--	22.0	19.7	3.4	6.1	72	575
15...	--	23.0	19.7	3.3	6.1	72	575
DEC							
10...	19.0	.20	13.1	9.5	6.9	62	480
10...	--	2.0	13.0	9.5	6.8	65	490
10...	--	4.0	11.8	8.6	6.8	64	495
10...	--	6.0	11.7	8.3	6.7	66	505
10...	--	8.0	11.7	8.2	6.6	66	510
10...	--	10.0	11.7	8.3	6.6	66	510
10...	--	12.0	11.6	8.2	6.6	66	515
10...	--	14.0	11.6	8.1	6.6	66	520
10...	--	16.0	11.5	7.8	6.5	66	520
10...	--	18.0	11.5	7.7	6.5	66	525
10...	--	20.0	11.5	7.8	6.5	66	525

CH-03C (02339388) Chattahoochee River below coffer dam, above West Point Dam, 1978 and 1979

DATE	TEMPER-ATURE, AIR (DEG C)	SAM-PLING DEPTH (M)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	PH (UNITS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	OXID-ATION REDU-UCTION POTEN-TIAL (MV)	TRANS-PAR-ENCY (SECCHI DISK) (M)	LIGHT DEPTH TO 1% OF SURFACE LIGHT (FEET)	LIGHT INCI-DENT PERCENT REMAIN-ING AT DEPTH
APR . 1978										
10...	29.0	.20	21.1	12.8	9.8	66	340	1.00	2.00	ND
10...	--	2.0	20.7	13.0	9.8	63	340	--	--	--
10...	--	3.0	19.1	12.4	9.2	58	345	--	--	--
10...	--	4.0	17.4	10.6	8.3	56	375	--	--	--
10...	--	5.0	16.3	9.3	7.2	59	400	--	--	--
10...	--	6.0	15.3	9.1	6.8	57	420	--	--	--
10...	--	8.0	12.6	7.8	6.6	56	435	--	--	--
10...	--	12.0	11.1	7.2	6.4	56	445	--	--	--
10...	--	15.0	10.0	6.3	6.3	55	455	--	--	--
10...	--	16.0	9.9	5.0	6.3	55	460	--	--	--
MAY										
14...	23.4	.20	19.7	8.0	6.5	58	515	1.25	3.00	--
14...	--	1.0	--	--	--	--	--	--	--	27
14...	--	2.0	19.7	8.0	6.3	58	520	--	--	5.0
14...	--	3.0	--	--	--	--	--	--	--	1.0
14...	--	4.0	19.6	7.9	6.1	58	530	--	--	--
14...	--	6.0	19.6	7.5	6.1	58	530	--	--	--
14...	--	8.0	18.3	5.4	5.9	58	540	--	--	--
14...	--	10.0	17.8	5.1	5.8	56	545	--	--	--
14...	--	12.0	17.1	4.8	5.7	54	540	--	--	--
14...	--	14.0	16.7	4.0	5.6	54	545	--	--	--
14...	--	16.0	16.3	3.1	5.5	54	550	--	--	--
14...	--	18.0	15.4	1.9	5.4	54	555	--	--	--
31...	21.5	.20	26.2	8.6	8.9	72	480	1.90	5.00	--
31...	--	1.0	--	--	--	--	--	--	--	38
31...	--	2.0	26.0	8.7	8.7	72	485	--	--	14
31...	--	3.0	--	--	--	--	--	--	--	5.0
31...	--	4.0	22.9	6.0	6.7	70	550	--	--	2.0
31...	--	5.0	--	--	--	--	--	--	--	1.0
31...	--	6.0	20.6	2.5	6.2	70	580	--	--	--
31...	--	8.0	20.0	2.9	6.2	72	590	--	--	--
31...	--	10.0	19.2	2.6	6.2	72	605	--	--	--
31...	--	12.0	18.2	1.1	6.1	72	615	--	--	--
31...	--	14.0	17.5	.6	6.0	72	620	--	--	--
31...	--	16.0	17.0	.3	6.0	72	620	--	--	--
31...	--	18.0	16.2	.2	6.2	72	610	--	--	--
JUN										
16...	--	--	--	--	--	--	--	--	--	2.0
JUL										
10...	29.6	.20	30.4	8.3	8.9	62	410	1.70	5.00	--
10...	--	1.0	--	--	--	--	--	--	--	34
10...	--	2.0	30.1	8.5	8.9	63	400	--	--	18
10...	--	3.0	29.8	8.6	8.9	63	400	--	--	9.0
10...	--	4.0	29.2	8.8	8.9	62	400	--	--	4.0
10...	--	5.0	28.6	6.6	7.4	60	430	--	--	2.0
10...	--	6.0	28.1	2.4	6.5	60	465	--	--	1.0
10...	--	7.0	26.5	.2	6.2	63	490	--	--	--
10...	--	8.0	25.1	<.1	6.2	66	495	--	--	--
10...	--	10.0	23.2	<.1	6.2	64	500	--	--	--
10...	--	12.0	21.2	<.1	6.2	63	470	--	--	--
10...	--	14.0	19.3	<.1	6.4	60	360	--	--	--
10...	--	16.0	18.6	<.1	6.4	72	295	--	--	--
10...	--	18.0	18.0	<.1	6.5	76	235	--	--	--
AUG										
14...	25.0	.20	27.4	6.0	6.9	66	500	1.70	5.00	--
14...	--	1.0	--	--	--	--	--	--	--	30
14...	--	2.0	27.4	5.9	6.9	68	505	--	--	11
14...	--	3.0	27.4	5.9	6.8	68	510	--	--	5.0
14...	--	4.0	27.5	5.8	6.8	68	510	--	--	2.0
14...	--	5.0	27.4	5.8	6.8	69	515	--	--	1.0
14...	--	6.0	27.3	5.7	6.8	68	520	--	--	--
14...	--	7.0	27.3	3.9	6.6	69	525	--	--	--
14...	--	8.0	27.0	1.1	6.2	71	540	--	--	--
14...	--	10.0	25.6	.1	6.1	74	550	--	--	--
14...	--	12.0	24.9	<.1	6.1	74	550	--	--	--
14...	--	14.0	24.4	<.1	6.1	75	550	--	--	--
14...	--	16.0	24.0	<.1	6.1	80	450	16.0	--	--
14...	--	18.0	22.8	<.1	6.3	95	330	--	--	--
30...	27.0	.20	28.4	8.6	8.3	69	520	1.10	4.00	--
30...	--	1.0	--	--	--	--	--	--	--	18
30...	--	2.0	28.5	8.3	8.3	69	510	--	--	6.0
30...	--	3.0	28.4	4.6	7.3	68	530	--	--	2.0
30...	--	4.0	28.2	2.6	6.8	69	550	--	--	1.0
30...	--	5.0	27.5	.1	6.3	70	565	--	--	--
30...	--	6.0	27.2	.1	6.2	71	575	--	--	--
30...	--	7.0	26.6	<.1	6.1	69	580	--	--	--
30...	--	8.0	26.0	<.1	6.1	67	590	--	--	--
30...	--	10.0	24.9	<.1	6.0	65	595	--	--	--
30...	--	12.0	23.8	<.1	6.0	63	595	--	--	--
30...	--	14.0	23.2	<.1	6.0	62	600	--	--	--
30...	--	16.0	22.8	<.1	6.0	62	600	--	--	--
OCT										
18...	16.0	.20	20.6	6.4	6.8	57	590	--	3.00	--
18...	--	1.0	--	--	--	--	--	--	--	18
18...	--	2.0	20.8	6.3	6.7	67	590	--	--	4.0
18...	--	3.0	--	--	--	--	--	--	--	1.0
18...	--	4.0	20.8	6.3	6.7	67	590	--	--	--
18...	--	6.0	20.9	6.2	6.7	67	595	--	--	--
18...	--	8.0	20.8	6.1	6.7	67	595	--	--	--
18...	--	10.0	20.8	6.1	6.7	68	600	--	--	--
18...	--	12.0	20.7	4.0	6.5	66	600	--	--	--
18...	--	14.0	20.4	2.1	6.3	65	610	--	--	--
NOV										
28...	14.0	.20	16.2	6.3	6.6	61	580	1.00	2.50	--
28...	--	1.0	--	--	--	--	--	--	--	10
28...	--	2.0	16.3	6.3	6.4	60	590	--	--	2.0
28...	--	2.5	--	--	--	--	--	--	--	1.0
28...	--	4.0	16.4	6.2	6.4	60	590	--	--	--
28...	--	6.0	16.3	6.1	6.4	60	595	--	--	--
28...	--	8.0	16.1	6.1	6.3	60	600	--	--	--
28...	--	10.0	16.3	6.0	6.3	60	600	--	--	--
28...	--	12.0	15.2	6.0	6.1	60	600	--	--	--
28...	--	14.0	16.2	5.9	6.1	63	605	--	--	--

DATE	TEMPER-ATURE, AIR (DEG C)	SAM-PLING DEPTH (M)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	PH (UNITS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	OXID-ATION RED-UCTION POTEN-TIAL (MV)	TRANS-PAR-ENCY (SECCHI DISK) (M)	LIGHT DEPTH TO 1% OF SURFACE LIGHT (FEET)	LIGHT INCI-DENT PERCENT REMAIN-ING AT DEPTH
JAN , 1979										
22...	2.0	.20	6.8	9.6	6.3	78	570	1.10	--	ND
22...	--	2.0	6.8	9.6	6.2	78	580	--	--	--
22...	--	4.0	6.8	9.6	6.2	78	585	--	--	--
22...	--	6.0	6.8	9.6	6.2	78	590	--	--	--
22...	--	8.0	6.8	9.6	6.1	78	595	--	--	--
22...	--	10.0	6.8	9.6	6.1	78	600	--	--	--
22...	--	12.0	6.8	9.6	6.1	78	600	--	--	--
22...	--	14.0	6.8	9.6	6.1	78	605	--	--	--
22...	--	15.0	6.8	9.6	6.0	80	605	--	--	--
MAR										
20...	28.0	.20	17.2	11.3	7.5	50	585	.40	1.50	--
20...	--	1.0	--	--	--	--	--	--	--	2.0
20...	--	1.5	--	--	--	--	--	--	--	1.0
20...	--	2.0	14.3	9.5	6.4	51	590	--	--	--
20...	--	4.0	13.1	9.1	6.1	53	610	--	--	--
20...	--	6.0	13.0	9.0	5.9	53	625	--	--	--
20...	--	8.0	12.9	8.8	5.8	53	635	--	--	--
20...	--	10.0	12.7	8.5	5.7	52	640	--	--	--
20...	--	12.0	12.5	8.4	5.7	52	645	--	--	--
20...	--	14.0	12.5	8.4	5.6	52	655	--	--	--
20...	--	16.0	12.2	8.8	5.6	55	655	--	--	--
20...	--	18.0	12.1	8.7	5.6	55	660	--	--	--
20...	--	20.0	9.9	6.8	5.4	59	670	--	--	--
MAY										
01...	26.0	.20	20.9	10.5	7.8	44	515	.50	2.00	--
01...	--	1.0	--	--	--	--	--	--	--	3.0
01...	--	2.0	20.3	10.3	7.6	44	535	--	--	1.0
01...	--	4.0	19.9	9.8	7.1	44	550	--	--	--
01...	--	6.0	18.5	8.5	6.4	44	580	--	--	--
01...	--	8.0	17.8	7.6	6.1	45	595	--	--	--
01...	--	10.0	17.7	7.6	5.9	45	605	--	--	--
01...	--	12.0	17.6	7.5	5.8	46	620	--	--	--
01...	--	14.0	17.4	7.6	5.8	46	625	--	--	--
01...	--	16.0	17.4	7.6	5.8	46	630	--	--	--
01...	--	18.0	17.4	7.6	5.8	46	640	--	--	--
01...	--	20.0	16.4	5.8	5.6	48	650	--	--	--
01...	--	22.0	16.3	4.5	5.5	48	655	--	--	--
JUN										
14...	26.0	.20	25.6	8.9	8.7	56	460	1.50	4.00	--
14...	--	1.0	--	--	--	--	--	--	--	30
14...	--	2.0	25.6	8.9	8.6	57	470	--	--	9.0
14...	--	3.0	--	--	--	--	--	--	--	4.0
14...	--	4.0	25.6	9.0	8.6	57	470	--	--	1.0
14...	--	6.0	25.5	8.7	8.4	56	480	--	--	--
14...	--	8.0	25.4	8.5	8.3	56	485	--	--	--
14...	--	10.0	24.7	7.4	7.0	56	510	--	--	--
14...	--	11.0	24.0	5.8	6.7	57	530	--	--	--
14...	--	12.0	23.1	5.5	6.1	58	560	--	--	--
14...	--	14.0	21.5	3.3	5.7	58	575	--	--	--
14...	--	16.0	21.2	3.0	5.6	59	595	--	--	--
14...	--	18.0	20.9	2.2	5.5	60	605	--	--	--
14...	--	20.0	20.2	1.0	5.4	60	615	--	--	--
15...	--	--	--	--	--	--	--	--	5.00	--
JUL										
24...	32.0	.20	27.4	7.5	8.1	57	480	1.40	5.00	--
24...	--	1.0	--	--	--	--	--	--	--	28
24...	--	2.0	27.3	7.5	7.6	57	490	--	--	12
24...	--	3.0	27.2	7.4	7.0	58	505	--	--	6.0
24...	--	4.0	27.1	7.2	6.9	57	515	--	--	3.0
24...	--	5.0	26.0	2.8	6.7	60	525	--	--	1.0
24...	--	6.0	25.6	2.0	6.5	62	540	--	--	--
24...	--	7.0	25.1	1.3	6.4	64	550	--	--	--
24...	--	8.0	24.7	.6	6.4	64	560	--	--	--
24...	--	10.0	23.5	<.1	6.6	67	570	--	--	--
24...	--	12.0	22.5	<.1	6.7	68	560	--	--	--
24...	--	14.0	21.6	<.1	7.4	76	575	--	--	--
24...	--	16.0	21.0	<.1	7.3	78	550	--	--	--
24...	--	18.0	20.2	<.1	6.7	84	510	--	--	--
24...	--	20.0	19.8	<.1	6.8	88	360	--	--	--
27...	--	--	--	--	--	--	--	--	6.00	--

CH-03C (02339388) Chattahoochee River below coffer dam, above West Point Dam, 1978 and 1979

DATE	TEMPER-ATURE, AIR (DEG C)	SAM-PLING DEPTH (M)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	PH (UNITS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	OXID-ATION RED-UCTION POTEN-TIAL (MV)	TRANS-PAR-ENCY (SECCHI DISK) (M)	LIGHT DEPTH TO 1% OF SURFACE LIGHT (FEET)	LIGHT INCI-DENT PERCENT REMAIN-ING AT DEPTH
AUG										
21...	34.0	.20	29.1	8.3	8.3	68	425	1.70	5.50	--
21...	--	1.0	--	--	--	--	--	--	--	42
21...	--	2.0	28.4	8.6	8.4	68	425	--	--	21
21...	--	3.0	28.2	8.0	8.2	67	435	--	--	10
21...	--	4.0	27.9	6.9	7.3	65	450	--	--	4.0
21...	--	5.0	27.9	6.8	7.0	64	470	--	--	2.0
21...	--	5.5	--	--	--	--	--	--	--	1.0
21...	--	6.0	27.7	6.3	6.9	67	480	--	--	--
21...	--	7.0	27.6	5.8	6.7	67	490	--	--	--
21...	--	8.0	27.5	5.4	6.6	67	495	--	--	--
21...	--	10.0	26.9	2.0	6.2	71	505	--	--	--
21...	--	12.0	24.9	.5	5.9	78	400	--	--	--
21...	--	14.0	23.9	.5	6.0	87	190	--	--	--
21...	--	16.0	23.1	.5	6.1	92	140	--	--	--
21...	--	18.0	22.5	.5	6.2	97	120	--	--	--
21...	--	20.0	21.8	.5	6.2	102	100	--	--	--
24...	--	--	--	--	--	--	--	--	5.00	--
SEP										
17...	19.0	.20	25.4	5.7	6.7	73	565	--	--	ND
17...	--	2.0	25.4	5.7	6.7	73	560	--	--	--
17...	--	4.0	25.4	5.7	6.7	73	565	--	--	--
17...	--	6.0	25.4	5.7	6.7	73	565	--	--	--
17...	--	8.0	25.4	5.7	6.7	73	565	--	--	--
17...	--	10.0	25.4	5.7	6.7	72	565	--	--	--
17...	--	12.0	25.4	6.2	6.7	73	570	--	--	--
17...	--	14.0	25.3	5.9	6.6	73	570	--	--	--
17...	--	16.0	25.3	5.8	6.6	72	570	--	--	--
17...	--	18.0	25.0	3.9	6.4	75	575	--	--	--
17...	--	20.0	24.0	1.1	6.1	78	510	--	--	--
17...	--	21.0	23.8	.7	6.1	78	370	--	--	--
OCT										
15...	20.6	.20	21.1	6.4	6.6	70	565	1.50	--	ND
15...	--	2.0	20.6	6.5	6.5	70	570	--	--	--
15...	--	4.0	20.5	6.1	6.5	71	575	--	--	--
15...	--	6.0	20.4	5.5	6.5	70	575	--	--	--
15...	--	8.0	20.4	6.0	6.4	70	580	--	--	--
15...	--	10.0	20.4	5.6	6.4	70	580	--	--	--
15...	--	12.0	20.4	5.9	6.4	70	580	--	--	--
15...	--	14.0	20.3	5.5	6.4	70	585	--	--	--
15...	--	16.0	20.0	4.5	6.2	71	590	--	--	--
15...	--	18.0	19.8	3.8	6.1	71	595	--	--	--
15...	--	20.0	19.7	3.7	6.1	72	600	--	--	--
DEC										
10...	21.0	.20	12.3	7.8	6.2	67	580	1.00	3.00	--
10...	--	1.0	--	--	--	--	--	--	--	18
10...	--	2.0	11.8	7.4	6.2	67	585	--	--	5.0
10...	--	3.0	--	--	--	--	--	--	--	1.0
10...	--	4.0	11.7	7.1	6.1	67	590	--	--	--
10...	--	6.0	11.6	7.1	6.1	67	595	--	--	--
10...	--	8.0	11.6	7.0	6.1	67	595	--	--	--
10...	--	10.0	11.6	6.9	6.1	67	600	--	--	--
10...	--	12.0	11.5	6.8	6.1	67	600	--	--	--
10...	--	14.0	11.5	6.7	6.1	67	600	--	--	--
10...	--	16.0	11.2	6.5	6.0	67	605	--	--	--
10...	--	18.0	11.2	6.5	6.0	67	605	--	--	--
10...	--	20.0	11.1	6.1	6.1	67	605	--	--	--
11...	--	--	--	--	--	--	--	--	3.00	--
11...	--	1.0	--	--	--	--	--	--	--	18
11...	--	2.0	--	--	--	--	--	--	--	5.0
11...	--	3.0	--	--	--	--	--	--	--	1.0

CH-08 (02339020) Yellowjacket Creek at Cameron Mill Road, near LaGrange, Ga., 1978 and 1979

DATE	TEMPERATURE, AIR (DEG C)	SAMPLING DEPTH (M)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	PH (UNITS)	SPECIFIC CONDUCTANCE (MICROMHOS)	OXIDATION REDUCTION POTENTIAL (MV)	TRANSPARENCY (SECCHI DISK) (M)	LIGHT DEPTH TO 1% OF SURFACE LIGHT (FEET)	LIGHT INCIDENT PERCENT REMAINING AT DEPTH
APR., 1978										
17...	28.0	.20	22.7	12.7	8.6	62	440	--	--	ND
17...	--	2.0	21.9	12.5	8.6	63	440	--	--	--
17...	--	3.0	19.7	5.6	6.1	71	485	--	--	--
17...	--	4.0	19.5	6.4	6.1	70	475	--	--	--
17...	--	5.0	16.0	2.9	5.5	55	515	--	--	--
17...	--	6.0	15.1	1.2	5.4	55	515	--	--	--
17...	--	7.0	13.2	.2	5.6	54	480	--	--	--
17...	--	8.0	11.7	.1	6.2	95	275	--	--	--
MAY										
02...	20.0	.20	19.6	9.6	7.7	57	490	--	--	ND
02...	--	1.0	19.4	9.1	7.5	56	495	--	--	--
02...	--	2.0	19.2	8.3	7.1	57	505	--	--	--
02...	--	4.0	18.5	6.1	6.7	58	515	--	--	--
02...	--	6.0	17.4	5.3	6.6	62	525	--	--	--
02...	--	8.0	16.9	5.1	6.5	65	530	--	--	--
02...	--	10.0	15.9	.3	6.7	75	375	--	--	--
JUN										
05...	29.4	.20	29.0	10.0	9.2	82	435	1.20	--	ND
05...	--	2.0	27.6	9.6	9.1	90	445	--	--	--
05...	--	3.0	26.5	7.1	7.6	78	500	--	--	--
05...	--	4.0	25.1	5.2	6.7	74	530	--	--	--
05...	--	5.0	22.4	2.0	6.3	66	550	--	--	--
05...	--	6.0	21.0	.3	6.2	62	560	--	--	--
05...	--	8.0	19.5	.1	6.2	68	570	--	--	--
05...	--	10.0	18.6	<.1	6.3	86	560	--	--	--
JUL										
12...	30.9	.20	30.6	9.1	8.9	71	440	1.20	3.00	--
12...	--	1.0	--	--	--	--	--	--	--	17
12...	--	2.0	29.5	8.9	8.9	69	435	--	--	4.0
12...	--	3.0	29.3	8.1	8.6	68	450	--	--	1.0
12...	--	4.0	29.1	7.2	8.0	67	470	--	--	--
12...	--	5.0	28.3	.5	6.5	70	520	--	--	--
12...	--	6.0	27.3	<.1	6.2	71	555	--	--	--
12...	--	7.0	26.0	<.1	6.3	72	290	--	--	--
12...	--	8.0	24.6	<.1	6.4	73	210	--	--	--
12...	--	10.0	22.3	<.1	6.7	102	120	--	--	--
12...	--	12.0	20.1	<.1	6.8	129	95.0	--	--	--
12...	--	13.0	20.0	<.1	6.7	138	120	--	--	--
AUG										
15...	29.0	.20	28.9	9.3	8.4	64	500	1.10	3.00	--
15...	--	1.0	--	--	--	--	--	--	--	19
15...	--	2.0	28.0	7.5	7.3	64	515	--	--	4.0
15...	--	3.0	27.2	3.1	6.4	64	550	--	--	1.0
15...	--	4.0	26.4	.5	6.1	68	575	--	--	--
15...	--	5.0	25.2	2.2	6.0	65	585	--	--	--
15...	--	6.0	24.5	2.4	6.0	63	595	--	--	--
15...	--	7.0	24.4	2.4	6.0	62	600	--	--	--
15...	--	8.0	24.1	2.2	6.0	62	600	--	--	--
15...	--	10.0	23.9	2.1	6.0	63	605	--	--	--
15...	--	12.0	22.5	<.1	6.5	164	150	--	--	--
15...	--	13.0	21.4	<.1	6.6	194	100	--	--	--
28...	27.0	.20	29.9	9.2	8.9	67	495	1.00	3.00	--
28...	--	1.0	--	--	--	--	--	--	--	15
28...	--	2.0	29.3	8.9	8.9	67	485	--	--	4.0
28...	--	3.0	29.0	4.7	7.8	65	505	--	--	1.0
28...	--	4.0	28.0	1.2	6.4	66	560	--	--	--
28...	--	5.0	27.1	.1	6.2	58	580	--	--	--
28...	--	6.0	26.0	<.1	6.2	78	585	--	--	--
28...	--	7.0	25.3	<.1	6.2	76	585	--	--	--
28...	--	8.0	24.7	<.1	6.2	73	590	--	--	--
28...	--	10.0	23.9	<.1	6.4	121	330	--	--	--
28...	--	12.0	22.0	<.1	6.7	160	150	--	--	--
28...	--	13.0	21.1	<.1	6.8	230	95.0	--	--	--
OCT										
17...	18.5	.20	19.0	5.1	6.7	68	575	.90	2.00	--
17...	--	1.0	--	--	--	--	--	--	--	7.0
17...	--	2.0	18.8	4.9	6.5	68	580	--	--	1.0
17...	--	4.0	18.6	5.3	6.5	68	590	--	--	--
17...	--	6.0	18.5	5.5	6.5	68	590	--	--	--
NOV										
29...	13.0	.20	15.5	5.8	6.6	62	600	1.00	2.00	--
29...	--	1.0	--	--	--	--	--	--	--	6.0
29...	--	2.0	15.5	5.9	6.4	62	605	--	--	1.0
29...	--	4.0	15.6	6.1	6.4	63	610	--	--	--
29...	--	6.0	15.6	6.1	6.4	63	610	--	--	--
29...	--	7.0	15.6	6.0	6.4	63	610	--	--	--
29...	--	8.0	15.6	5.3	6.3	64	610	--	--	--
29...	--	10.0	15.6	3.0	6.2	67	620	--	--	--

(H-08 (02339620) Yellowjacket Creek at Cameron Mill Road, near LaGrange, Ga., 1978 and 1979

DATE	TEMPERATURE, AIR (DEG C)	SAMPLING DEPTH (M)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	PH (UNITS)	SPECIFIC CONDUCTANCE (MICROMHOS)	OXIDATION REDUCTION POTENTIAL (MV)	TRANSPARENCY (SECCHI DISK) (M)	LIGHT DEPTH TO 1% OF SURFACE LIGHT (FEET)	LIGHT INCIDENT PERCENT REMAINING AT DEPTH
JAN., 1979										
21...	10.0	.20	6.7	10.6	7.0	50	570	.80	--	ND
21...	--	2.0	6.6	10.6	7.0	50	575	--	--	--
21...	--	4.0	6.5	10.4	7.0	50	580	--	--	--
21...	--	6.0	6.5	10.4	6.9	54	580	--	--	--
21...	--	8.0	6.3	10.1	6.9	54	580	--	--	--
21...	--	10.0	6.2	10.3	6.9	54	580	--	--	--
21...	--	11.0	6.2	10.3	6.9	54	585	--	--	--
21...	--	12.0	6.2	10.2	6.9	54	585	--	--	--
21...										
MAR										
21...	24.0	.20	17.1	10.9	6.4	50	610	.40	1.30	--
21...	--	1.0	--	--	--	--	--	--	--	2.0
21...	--	1.3	--	--	--	--	--	--	--	1.0
21...	--	2.0	13.6	8.2	6.0	38	630	--	--	--
21...	--	4.0	13.1	8.4	5.7	38	640	--	--	--
21...	--	6.0	12.9	8.2	5.5	37	650	--	--	--
21...	--	8.0	11.9	6.8	5.1	39	660	--	--	--
21...	--	10.0	10.2	1.9	5.2	48	670	--	--	--
21...	--	11.0	9.5	.8	5.2	52	665	--	--	--
21...	--	12.0	9.1	.5	5.2	56	660	--	--	--
21...										
MAY										
01...	28.5	.20	23.0	10.3	7.0	39	625	.40	1.30	--
01...	--	1.0	--	--	--	--	--	--	--	2.0
01...	--	1.3	--	--	--	--	--	--	--	1.0
01...	--	2.0	19.7	9.4	6.6	38	640	--	--	--
01...	--	4.0	18.3	7.1	6.1	41	660	--	--	--
01...	--	6.0	16.5	7.1	5.9	49	675	--	--	--
01...	--	8.0	16.1	6.6	5.7	48	680	--	--	--
01...	--	10.0	16.2	3.1	5.5	48	690	--	--	--
01...	--	12.0	14.2	<.1	5.7	64	565	--	--	--
01...	--	13.0	13.9	<.1	5.8	70	460	--	--	--
01...										
JUN										
12...	32.5	.20	26.5	9.3	9.2	56	510	1.00	3.00	--
12...	--	1.0	--	--	--	--	--	--	--	22
12...	--	2.0	26.3	9.2	8.1	56	515	--	--	5.0
12...	--	3.0	--	--	--	--	--	--	--	1.0
12...	--	4.0	25.8	9.0	8.0	55	520	--	--	--
12...	--	5.0	22.9	4.0	6.0	60	575	--	--	--
12...	--	6.0	22.2	2.7	5.8	60	590	--	--	--
12...	--	7.0	21.5	2.6	5.8	60	600	--	--	--
12...	--	8.0	21.2	2.7	5.8	62	600	--	--	--
12...	--	9.0	20.4	1.9	5.7	63	605	--	--	--
12...	--	10.0	18.5	<.1	6.1	67	310	--	--	--
12...	--	12.0	17.0	<.1	6.2	92	180	--	--	--
12...	--	14.0	16.2	<.1	6.4	108	150	--	--	--
12...										
JUL										
25...	31.0	.20	28.0	9.7	8.8	68	470	1.10	4.00	--
25...	--	1.0	--	--	--	--	--	--	--	26
25...	--	2.0	27.8	9.5	8.6	67	470	--	--	9.0
25...	--	3.0	27.5	8.7	8.0	67	485	--	--	4.0
25...	--	4.0	26.4	3.0	6.3	76	515	--	--	1.0
25...	--	5.0	25.8	2.0	6.0	76	535	--	--	--
25...	--	6.0	25.2	.3	5.9	71	555	--	--	--
25...	--	7.0	24.6	<.1	6.0	69	560	--	--	--
25...	--	8.0	24.4	<.1	6.0	70	560	--	--	--
25...	--	10.0	23.0	<.1	6.3	84	170	--	--	--
25...	--	12.0	21.2	<.1	6.5	126	110	--	--	--
25...	--	13.0	20.5	<.1	6.6	132	90.0	--	--	--
25...	--	14.0	20.0	<.1	6.5	154	80.0	--	--	--
25...										
AUG										
22...	35.0	.20	29.8	8.3	8.4	63	380	1.10	3.50	--
22...	--	1.0	--	--	--	--	--	--	--	32
22...	--	2.0	29.2	7.9	8.2	62	385	--	--	10
22...	--	3.0	28.6	6.8	7.4	62	405	--	--	2.0
22...	--	3.5	--	--	--	--	--	--	--	1.0
22...	--	4.0	28.0	4.1	6.7	64	420	--	--	--
22...	--	5.0	27.6	2.6	6.4	66	435	--	--	--
22...	--	6.0	27.3	1.3	6.3	70	445	--	--	--
22...	--	7.0	26.7	.8	6.2	76	450	--	--	--
22...	--	8.0	26.1	.7	6.2	81	165	--	--	--
22...	--	10.0	25.0	1.0	6.4	87	90.0	--	--	--
22...	--	12.0	23.2	.7	6.5	114	65.0	--	--	--
22...	--	14.0	21.7	.5	6.5	147	50.0	--	--	--
22...										
SEP										
19...	22.0	.20	24.0	5.0	6.0	73	510	1.20	--	ND
19...	--	2.0	24.1	4.8	6.2	69	535	--	--	--
19...	--	4.0	24.1	4.8	6.2	69	545	--	--	--
19...	--	6.0	24.1	4.5	6.2	69	550	--	--	--
19...	--	8.0	24.0	3.4	6.2	69	555	--	--	--
19...	--	10.0	23.9	3.3	6.2	69	560	--	--	--
19...	--	12.0	23.3	1.3	6.3	133	150	--	--	--
19...	--	14.0	22.2	.6	6.5	185	105	--	--	--
19...										

CH-08 (02339020) Yellowjacket Creek at Cameron Mill Road, near LaGrange, Ga., 1978 and 1979

DATE	TEMPERATURE, AIR (DEG C)	SAMPLING DEPTH (M)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	PH (UNITS)	SPECIFIC CONDUCTANCE (MICROMHOS)	OXIDATION REDUCTION POTENTIAL (MV)	TRANSPARENCY (SECCHI DISK) (M)	LIGHT DEPTH TO 1% OF SURFACE LIGHT (FEET)	LIGHT INCIDENT PERCENT REMAINING AT DEPTH
OCT										
16...	13.0	.20	19.2	6.7	6.5	66	585	1.20	--	ND
16...	--	2.0	19.2	6.7	6.5	66	510	--	--	--
16...	--	4.0	19.2	6.6	6.5	66	520	--	--	--
16...	--	6.0	19.2	6.6	6.5	66	530	--	--	--
16...	--	8.0	18.6	6.3	6.4	68	540	--	--	--
16...	--	10.0	18.4	6.0	6.3	68	545	--	--	--
16...	--	12.0	18.2	5.8	6.3	69	550	--	--	--
16...	--	14.0	18.2	5.5	6.2	69	555	--	--	--
DEC										
12...	13.0	.20	10.9	10.0	6.2	61	640	.73	2.00	--
12...	--	1.0	--	--	--	--	--	--	--	9.0
12...	--	2.0	10.7	9.5	6.4	61	625	--	--	1.0
12...	--	4.0	10.2	8.7	6.4	61	625	--	--	--
12...	--	6.0	9.7	8.2	6.3	64	625	--	--	--
12...	--	8.0	9.2	8.4	6.3	68	630	--	--	--
12...	--	10.0	9.2	8.3	6.3	69	630	--	--	--
12...	--	11.0	9.1	8.2	6.2	69	490	--	--	--

DATE	TEMPERATURE, AIR (DEG C)	SAMPLING DEPTH (M)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	PH (UNITS)	SPECIFIC CONDUCTANCE (MICROMHOS)	OXIDATION REDUCTION POTENTIAL (MV)	TRANSPARENCY (SECCHI DISK) (M)	LIGHT DEPTH TO 1% OF SURFACE LIGHT (FEET)	LIGHT INCIDENT PERCENT REMAINING AT DEPTH
OCT . 1978										
18...	15.8	.20	18.2	6.8	7.2	52	570	.60	1.50	--
18...	--	1.0	--	--	--	--	--	--	--	3.0
18...	--	1.5	--	--	--	--	--	--	--	1.0
18...	--	2.0	18.4	6.7	6.9	51	570	--	--	--
18...	--	4.0	18.4	6.6	6.8	51	580	--	--	--
18...	--	6.0	18.4	6.6	6.7	51	580	--	--	--
NOV										
28...	12.8	.20	15.9	6.0	6.7	52	575	.70	2.00	--
28...	--	1.0	--	--	--	--	--	--	--	6.0
28...	--	2.0	15.8	5.9	6.5	52	580	--	--	1.0
28...	--	4.0	15.8	5.8	6.5	52	585	--	--	--
JAN . 1979										
23...	13.0	.20	6.3	11.0	7.0	31	570	.40	--	ND
23...	--	2.0	6.1	11.0	6.9	40	580	--	--	--
23...	--	4.0	6.1	11.0	6.9	40	580	--	--	--
23...	--	6.0	6.0	11.0	6.9	40	585	--	--	--
23...	--	8.0	6.0	10.9	6.9	40	585	--	--	--
MAR										
20...	26.5	.20	19.3	10.4	6.2	31	650	.35	1.00	--
20...	--	1.0	--	--	--	--	--	--	--	1.0
20...	--	2.0	14.3	8.8	5.9	32	665	--	--	--
20...	--	4.0	13.1	7.4	5.6	33	680	--	--	--
20...	--	5.0	12.9	7.4	5.4	33	690	--	--	--
20...	--	6.0	12.8	7.3	5.4	33	690	--	--	--
APR										
30...	28.5	.20	22.1	9.1	6.5	30	595	.65	2.00	--
30...	--	1.0	--	--	--	--	--	--	--	4.0
30...	--	2.0	19.8	8.3	6.3	30	615	--	--	1.0
30...	--	4.0	18.7	6.4	5.9	30	640	--	--	--
30...	--	6.0	16.8	3.7	5.5	31	660	--	--	--
30...	--	8.0	16.3	1.4	5.5	36	660	--	--	--
JUN										
14...	27.5	.20	26.1	8.1	7.0	41	605	1.60	5.00	--
14...	--	1.0	--	--	--	--	--	--	--	35
14...	--	2.0	26.0	8.2	7.1	41	600	--	--	12
14...	--	3.0	--	--	--	--	--	--	--	4.0
14...	--	4.0	23.6	5.2	6.2	45	620	--	--	2.0
14...	--	5.0	--	--	--	--	--	--	--	1.0
14...	--	6.0	22.0	1.3	5.8	45	635	--	--	--
14...	--	8.0	20.0	<.1	5.8	56	325	--	--	--
14...	--	9.0	19.0	<.1	6.0	71	240	--	--	--
JUL										
25...	29.2	.20	27.7	7.6	7.9	52	500	1.30	4.00	--
25...	--	1.0	--	--	--	--	--	--	--	23
25...	--	2.0	27.6	7.6	7.8	52	495	--	--	7.0
25...	--	3.0	27.6	7.6	7.7	52	495	--	--	3.0
25...	--	4.0	27.5	7.3	7.3	52	500	--	--	1.0
25...	--	5.0	26.5	2.3	6.3	56	530	--	--	--
25...	--	6.0	25.9	.9	6.2	46	540	--	--	--
25...	--	7.0	25.0	<.1	6.2	56	350	--	--	--
25...	--	8.0	24.2	<.1	6.3	64	220	--	--	--
25...	--	10.0	23.0	<.1	6.4	84	150	--	--	--
AUG										
21...	32.0	.20	30.9	7.3	7.8	51	370	1.30	4.00	--
21...	--	1.0	--	--	--	--	--	--	--	33
21...	--	2.0	28.9	6.6	6.9	52	390	--	--	12
21...	--	3.0	28.4	5.6	6.7	51	430	--	--	4.0
21...	--	4.0	27.8	2.7	6.2	52	440	--	--	1.0
21...	--	5.0	27.5	2.3	6.1	53	450	--	--	--
21...	--	6.0	27.2	.6	6.0	56	350	--	--	--
21...	--	7.0	26.1	[illegible]	6.1	74	130	--	--	--
21...	--	8.0	25.6	.5	6.2	81	100	--	--	--
21...	--	10.0	24.5	.5	6.3	106	75.0	--	--	--
SEP										
18...	19.0	.20	24.4	5.4	6.3	52	535	.90	--	ND
18...	--	2.0	24.5	5.1	6.3	52	540	--	--	--
18...	--	4.0	24.5	5.0	6.3	52	545	--	--	--
18...	--	6.0	24.5	5.0	6.3	52	550	--	--	--
18...	--	8.0	24.1	5.3	6.3	51	550	--	--	--
OCT										
16...	26.0	.20	21.9	7.2	6.3	50	560	1.00	--	ND
16...	--	2.0	20.2	6.4	6.3	50	565	--	--	--
16...	--	4.0	19.9	6.2	6.2	50	565	--	--	--
16...	--	6.0	19.8	6.2	6.3	50	570	--	--	--
16...	--	8.0	19.6	6.1	6.2	50	575	--	--	--
16...	--	10.0	19.6	6.1	6.2	49	580	--	--	--
16...	--	12.0	19.6	6.0	6.2	50	580	--	--	--
DEC										
11...	17.0	.20	9.5	8.1	6.3	46	580	.70	--	ND
11...	--	2.0	9.6	8.2	6.3	46	580	--	--	--
11...	--	4.0	9.6	8.3	6.3	46	585	--	--	--
11...	--	6.0	9.5	8.3	6.2	45	590	--	--	--
11...	--	8.0	9.4	8.3	6.2	46	590	--	--	--

CH-13 (02339362) Wehadkee Creek at State Highway 238, near Abbottsford, Ga., 1978 and 1979

DATE	TEMPERATURE, AIR (DEG C)	SAMPLING DEPTH (M)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	PH (UNITS)	SPECIFIC CONDUCTANCE (MICROMHOS)	OXIDATION REDUCTION POTENTIAL (MV)	TRANSPARENCY (SECCHI DISK) (M)	LIGHT DEPTH TO 1% OF SURFACE LIGHT (FEET)	LIGHT INCIDENT PERCENT REMAINING AT DEPTH
APR . 1978										
11...	--	.20	--	--	--	--	--	--	3.00	--
11...	29.0	1.0	20.8	11.1	9.0	58	430	1.00	--	13
11...	--	2.0	20.7	11.1	9.3	59	380	--	--	2.0
11...	--	3.0	--	--	--	--	--	--	--	1.0
11...	--	4.0	20.7	11.2	9.3	58	380	--	--	--
11...	--	6.0	20.3	10.9	9.5	58	370	--	--	--
11...	--	7.0	14.0	7.8	6.6	50	465	--	--	--
11...	--	8.0	15.0	7.7	7.0	50	420	--	--	--
11...	--	9.0	12.3	7.8	6.5	44	460	--	--	--
11...	--	10.0	10.2	6.6	6.4	45	470	--	--	--
11...	--	12.0	9.8	6.4	6.5	40	455	--	--	--
11...	--	16.0	8.5	2.3	6.4	45	465	--	--	--
11...	--	17.0	8.4	2.2	6.2	43	470	--	--	--
MAY										
04...	14.0	.20	18.3	7.9	6.8	54	485	1.20	4.00	--
04...	--	1.0	--	--	--	--	--	--	--	23
04...	--	2.0	18.3	7.8	6.6	54	510	--	--	8.0
04...	--	3.0	--	--	--	--	--	--	--	3.0
04...	--	4.0	18.2	7.7	6.5	54	515	--	--	1.0
04...	--	6.0	18.2	7.7	6.4	56	515	--	--	--
04...	--	8.0	17.8	6.5	6.3	52	525	--	--	--
04...	--	10.0	16.9	5.4	6.1	55	530	--	--	--
04...	--	11.0	15.7	4.8	5.7	52	470	--	--	--
04...	--	12.0	14.8	3.2	5.8	48	--	--	--	--
04...	--	13.0	13.2	2.2	5.4	43	465	--	--	--
04...	--	14.0	12.7	2.0	5.5	42	--	--	--	--
04...	--	16.0	11.4	1.0	5.5	42	--	--	--	--
04...	--	18.0	10.6	.1	5.6	54	440	--	--	--
31...	30.4	.20	28.0	10.8	9.0	76	450	1.30	3.50	--
31...	--	1.0	--	--	--	--	--	--	--	28
31...	--	2.0	26.5	10.9	9.1	75	460	--	--	6.0
31...	--	3.0	--	--	--	--	--	--	--	2.0
31...	--	3.5	--	--	--	--	--	--	--	1.0
31...	--	4.0	22.0	4.6	6.4	76	565	--	--	--
31...	--	6.0	20.2	2.9	6.1	76	590	--	--	--
31...	--	8.0	19.5	3.0	6.1	76	600	--	--	--
31...	--	10.0	18.9	2.1	6.1	76	610	--	--	--
31...	--	12.0	18.2	.5	6.0	72	620	--	--	--
31...	--	14.0	17.5	.2	6.0	74	620	--	--	--
31...	--	16.0	16.2	.1	6.3	80	450	--	--	--
JUL . 1978										
10...	25.0	.20	29.6	8.8	9.0	64	465	--	4.00	--
10...	--	1.0	--	--	--	--	--	--	--	29
10...	--	2.0	29.6	8.7	9.0	65	465	--	--	10
10...	--	3.0	29.2	7.3	8.0	66	500	--	--	3.0
10...	--	4.0	28.7	5.9	7.2	65	535	--	--	1.0
10...	--	5.0	28.4	4.1	6.7	65	560	--	--	--
10...	--	6.0	28.0	2.2	6.5	65	570	--	--	--
10...	--	7.0	26.5	.1	6.3	63	570	--	--	--
10...	--	8.0	25.1	.1	6.3	67	570	--	--	--
10...	--	10.0	23.3	<.1	6.3	56	250	--	--	--
10...	--	12.0	21.0	<.1	6.4	55	175	--	--	--
10...	--	14.0	19.5	<.1	6.4	60	140	--	--	--
10...	--	16.0	18.4	<.1	6.6	75	--	--	--	--
10...	--	18.0	17.3	<.1	6.7	105	--	--	--	--
AUG										
16...	30.0	.20	28.0	9.1	8.1	70	420	1.20	4.00	--
16...	--	1.0	28.0	9.1	8.3	70	420	--	--	33
16...	--	2.0	28.0	8.9	8.3	70	420	--	--	15
16...	--	3.0	28.0	8.6	8.1	64	430	--	--	4.0
16...	--	4.0	27.5	5.4	7.2	68	440	--	--	1.0
16...	--	5.0	27.5	4.6	6.7	70	450	--	--	--
16...	--	6.0	27.5	3.8	6.6	72	450	--	--	--
16...	--	7.0	27.0	4.0	6.5	72	460	--	--	--
16...	--	8.0	27.0	2.5	6.3	72	460	--	--	--
16...	--	10.0	25.5	.5	6.1	68	470	--	--	--
16...	--	12.0	24.5	.2	6.0	68	470	--	--	--
16...	--	14.0	24.0	<.1	6.0	56	480	--	--	--
16...	--	16.0	22.5	<.1	6.1	108	140	--	--	--

CH-13 (02339362) Wehadkee Creek at State Highway 238, near Abbottsford, Ga., 1978 and 1979

DATE	TEMPER-ATURE, AIR (DEG C)	SAM-PLING DEPTH (M)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	PH (UNITS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	OXID-ATION REDU-UCTION POTEN-TIAL (MV)	TRANS-PAR-ENCY (SECCHI DISK) (M)	LIGHT DEPTH TO 1% OF SURFACE LIGHT (FEET)	LIGHT INCI-DENT PERCENT REMAIN-ING AT DEPTH
AUG										
28...	33.0	.20	30.3	8.5	8.7	68	450	1.10	3.00	--
28...	--	1.0	--	--	--	--	--	--	--	20
28...	--	2.0	29.5	8.5	8.8	69	440	--	--	6.0
28...	--	3.0	29.0	7.8	8.6	68	445	--	--	1.0
28...	--	4.0	28.5	4.1	7.1	68	485	--	--	--
28...	--	5.0	27.7	.9	6.3	68	520	--	--	--
28...	--	6.0	27.3	.1	6.2	68	535	--	--	--
28...	--	7.0	26.6	<.1	6.1	70	545	--	--	--
28...	--	8.0	25.7	<.1	6.0	67	550	--	--	--
28...	--	10.0	24.7	<.1	6.0	65	560	--	--	--
28...	--	12.0	23.6	<.1	5.9	62	565	--	--	--
28...	--	14.0	23.0	<.1	5.9	62	570	--	--	--
28...	--	16.0	22.5	<.1	6.0	69	560	--	--	--
28...	--	18.0	21.0	<.1	6.4	140	220	--	--	--
OCT										
16...	20.0	.20	20.6	6.6	6.7	64	540	1.20	3.00	--
16...	--	1.0	--	--	--	--	--	--	--	10
16...	--	2.0	20.2	6.5	6.7	65	550	--	--	2.0
16...	--	3.0	--	--	--	--	--	--	--	1.0
16...	--	4.0	20.6	6.5	6.7	66	550	--	--	--
16...	--	6.0	20.4	6.2	6.6	66	555	--	--	--
16...	--	8.0	20.2	6.0	6.6	65	560	--	--	--
16...	--	10.0	19.8	4.7	6.4	66	570	--	--	--
16...	--	12.0	18.6	5.3	6.3	64	580	--	--	--
16...	--	14.0	17.2	5.4	6.3	64	580	--	--	--
16...	--	16.0	17.2	5.4	6.3	64	580	--	--	--
NOV										
28...	12.0	.20	16.0	6.8	6.9	60	595	1.20	3.00	--
28...	--	1.0	--	--	--	--	--	--	--	14
28...	--	2.0	16.0	6.8	6.8	59	605	--	--	2.0
28...	--	3.0	--	--	--	--	--	--	--	1.0
28...	--	4.0	16.1	6.8	6.6	58	610	--	--	--
28...	--	6.0	16.1	6.7	6.5	58	610	--	--	--
28...	--	8.0	16.1	6.8	6.5	58	610	--	--	--
28...	--	10.0	16.1	6.5	6.5	59	615	--	--	--
28...	--	12.0	15.0	5.6	6.4	60	620	--	--	--
28...	--	14.0	15.9	5.2	6.5	61	590	--	--	--
28...	--	16.0	15.9	5.2	6.5	61	590	--	--	--

CH-13 (02339362) Wehadkee Creek at State Highway 238, near Abbottsford, Ga., 1978 and 1979

DATE	TEMPER-ATURE, AIR (DEG C)	SAM-PLING DEPTH (M)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	PH (UNITS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	OXID-ATION RED-UCTION POTEN-TIAL (MV)	TRANS-PAR-ENCY (SECCHI DISK) (M)	LIGHT DEPTH TO 1% OF SURFACE LIGHT (FEET)	LIGHT INCI-DENT PERCENT REMAIN-ING AT DEPTH
JAN , 1979										
23...	9.0	.20	6.3	10.3	6.7	60	590	.90	--	ND
23...	--	2.0	6.5	10.3	6.6	62	595	--	--	--
23...	--	4.0	6.5	10.3	6.7	67	595	--	--	--
23...	--	6.0	6.4	10.2	6.7	68	600	--	--	--
23...	--	8.0	6.4	10.2	6.7	68	600	--	--	--
23...	--	10.0	6.3	10.1	6.7	68	600	--	--	--
23...	--	12.0	6.3	10.1	6.7	68	600	--	--	--
23...	--	14.0	6.3	10.0	6.7	68	600	--	--	--
23...	--	16.0	6.3	10.2	6.8	69	600	--	--	--
MAR										
20...	29.5	.20	22.3	11.2	8.0	46	550	.50	1.50	--
20...	--	1.0	--	--	--	--	--	--	--	4.0
20...	--	1.5	--	--	--	--	--	--	--	1.0
20...	--	2.0	14.2	8.7	6.8	48	570	--	--	--
20...	--	4.0	13.2	8.9	6.1	46	595	--	--	--
20...	--	6.0	12.7	9.4	6.0	44	610	--	--	--
20...	--	8.0	12.3	9.7	6.0	43	625	--	--	--
20...	--	10.0	11.6	9.3	5.9	44	635	--	--	--
20...	--	12.0	9.6	7.1	5.6	48	650	--	--	--
20...	--	13.0	8.2	5.8	5.4	50	665	--	--	--
APR										
30...	29.0	.20	20.9	10.5	8.2	38	540	.80	2.00	--
30...	--	1.0	--	--	--	--	--	--	--	11
30...	--	2.0	18.2	8.4	6.4	40	590	--	--	1.0
30...	--	4.0	17.2	8.0	6.2	46	610	--	--	--
30...	--	6.0	17.0	7.9	6.0	47	625	--	--	--
30...	--	8.0	16.9	7.7	6.0	47	630	--	--	--
30...	--	10.0	16.8	7.4	5.9	47	645	--	--	--
30...	--	12.0	16.1	5.0	5.6	43	660	--	--	--
30...	--	14.0	15.1	3.0	5.4	45	670	--	--	--
30...	--	16.0	14.1	.6	5.5	52	665	--	--	--
30...	--	18.0	13.3	<.1	5.7	62	430	--	--	--
JUN										
14...	29.0	.20	25.0	8.7	8.2	56	535	.95	3.00	--
14...	--	1.0	--	--	--	--	--	--	--	24
14...	--	2.0	25.1	8.7	8.2	56	530	--	--	6.0
14...	--	3.0	--	--	--	--	--	--	--	1.0
14...	--	4.0	25.0	8.5	8.0	56	540	--	--	--
14...	--	6.0	24.5	7.6	6.7	57	565	--	--	--
14...	--	7.0	23.6	5.4	6.1	58	605	--	--	--
14...	--	8.0	21.9	2.5	5.8	52	620	--	--	-
14...	--	9.0	21.3	2.0	5.7	52	610	--	--	--
14...	--	10.0	21.0	1.8	5.6	54	630	--	--	--
14...	--	12.0	20.2	.7	5.5	52	640	--	--	--
14...	--	14.0	18.4	<.1	5.4	48	550	--	--	--
14...	--	16.0	17.7	<.1	5.5	54	350	--	--	--
14...	--	18.0	16.7	<.1	5.6	60	265	--	--	--
14...	--	19.0	16.3	<.1	5.9	76	200	--	--	--
JUL										
25...	28.0	.20	27.4	7.9	8.2	64	565	1.40	5.00	--
25...	--	1.0	--	--	--	--	--	--	--	26
25...	--	2.0	27.4	7.8	8.1	64	595	--	--	11
25...	--	3.0	27.4	7.7	7.4	64	560	--	--	6.0
25...	--	4.0	27.4	7.8	7.5	64	555	--	--	2.0
25...	--	5.0	27.4	7.7	7.5	64	550	--	--	1.0
25...	--	6.0	26.9	5.2	6.4	60	570	--	--	--
25...	--	7.0	26.0	1.6	6.0	58	590	--	--	--
25...	--	8.0	25.4	.8	5.9	56	600	--	--	--
25...	--	10.0	24.5	<.1	6.0	57	420	--	--	--
25...	--	12.0	23.4	<.1	6.2	58	180	--	--	--
25...	--	14.0	22.2	<.1	6.2	61	140	--	--	--
25...	--	16.0	21.3	<.1	6.4	70	90.0	--	--	--
25...	--	18.0	20.0	<.1	6.5	78	70.0	--	--	--
AUG										
21...	36.0	.20	30.7	8.5	8.3	65	375	1.40	5.00	--
21...	--	1.0	--	--	--	--	--	--	--	46
21...	--	2.0	29.6	9.0	8.4	64	380	--	--	16
21...	--	3.0	28.9	8.9	8.3	65	385	--	--	6.0
21...	--	4.0	27.8	6.9	7.2	72	420	--	--	2.0
21...	--	5.0	27.6	5.9	6.8	72	430	--	--	1.0
21...	--	6.0	27.4	4.7	6.6	73	440	--	--	--
21...	--	7.0	27.3	4.1	6.4	72	445	--	--	--
21...	--	8.0	27.2	3.6	6.3	71	450	--	--	--
21...	--	10.0	26.2	.5	6.0	72	440	--	--	--
21...	--	12.0	25.0	.5	6.0	68	190	--	--	--
21...	--	14.0	24.1	.5	6.1	69	130	--	--	--
21...	--	16.0	23.3	.5	6.2	80	95.0	--	--	--
21...	--	18.0	22.4	.5	6.2	97	85.0	--	--	--
21...	--	19.0	21.9	.5	6.2	106	80.0	--	--	--

CH-13 (02339362) Wehadkee Creek at State Highway 238, near Abbottsford, Ga., 1978 and 1979

DATE	TEMPER-ATURE, AIR (DEG C)	SAM-PLING DEPTH (M)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	PH (UNITS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	OXID-ATION REDU-UCTION POTEN-TIAL (MV)	TRANS-PAR-ENCY (SECCHI DISK) (M)	LIGHT DEPTH TO 1% OF SURFACE LIGHT (FEET)	LIGHT INCI-DENT PERCENT REMAIN-ING AT DEPTH
SEP										
18...	20.0	.20	24.3	5.8	6.5	72	545	1.30	4.00	--
18...	--	1.0	--	--	--	--	--	--	--	65
18...	--	2.0	24.5	5.7	6.4	71	545	--	--	20
18...	--	3.0	--	--	--	--	--	--	--	11
18...	--	4.0	24.4	5.8	6.4	71	550	--	--	1.0
18...	--	6.0	24.5	5.8	6.4	71	550	--	--	--
18...	--	8.0	24.5	5.8	6.4	71	555	--	--	-
18...	--	10.0	24.5	5.7	6.4	71	555	--	--	--
18...	--	12.0	24.5	5.7	6.4	71	560	--	--	--
18...	--	14.0	24.5	5.7	6.4	71	560	--	--	--
18...	--	16.0	24.2	1.1	6.0	83	215	--	--	--
18...	--	18.0	23.0	.9	6.2	126	150	--	--	--
OCT										
16...	24.0	.20	21.2	6.5	6.5	68	535	1.80	--	ND
16...	--	2.0	20.8	6.7	6.5	68	540	--	--	--
16...	--	4.0	20.0	6.4	6.5	68	540	--	--	--
16...	--	6.0	20.0	6.2	6.4	68	545	--	--	--
16...	--	8.0	19.8	6.2	6.4	70	550	--	--	--
16...	--	10.0	19.8	6.4	6.4	70	550	--	--	--
16...	--	12.0	19.7	6.4	6.4	70	555	--	--	--
16...	--	14.0	19.6	6.1	6.3	70	555	--	--	--
16...	--	16.0	19.0	4.6	6.2	69	560	--	--	--
16...	--	18.0	18.5	4.2	6.2	69	550	--	--	--
DEC										
11...	20.5	.20	11.7	7.4	6.2	58	580	1.15	3.00	--
11...	--	1.0	--	--	--	--	--	--	--	14
11...	--	2.0	11.5	7.2	6.2	59	585	--	--	2.0
11...	--	3.0	--	--	--	--	--	--	--	1.0
11...	--	4.0	11.4	7.1	6.1	60	585	--	--	--
11...	--	6.0	11.2	6.9	6.1	63	590	--	--	--
11...	--	8.0	11.1	6.9	6.1	65	590	--	--	--
11...	--	10.0	11.0	6.8	6.1	66	595	--	--	--
11...	--	12.0	10.6	6.8	6.1	67	595	--	--	--
11...	--	14.0	10.2	7.0	6.1	66	595	--	--	--
11...	--	16.0	10.0	7.2	6.1	67	600	--	--	--
11...	--	17.0	9.9	7.2	6.1	67	600	--	--	--

CH-2.58 (02339402) Chattahoochee River below West Point Dam, 1978 and 1979

DATE	TEMPERATURE, AIR (DEG C)	SAMPLING DEPTH (M)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	PH (UNITS)	SPECIFIC CONDUCTANCE (MICROMHOS)	OXIDATION REDUCTION POTENTIAL (MV)
APR , 1978							
04...	25.0	.70	17.1	11.1	8.1	54	515
MAY							
01...	22.0	.70	16.9	8.9	--	56	--
01...	27.0	1.0	16.1	6.1	6.2	55	435
30...	21.0	.70	21.5	5.3	6.8	53	355
30...	28.0	1.0	20.5	3.6	6.1	51	470
JUL							
09...	29.2	.70	27.4	4.9	6.8	63	395
10...	30.0	1.0	22.8	2.3	6.6	68	380
AUG							
13...	29.7	.70	27.7	4.4	7.0	76	330
14...	26.0	1.0	26.4	3.1	6.4	72	530
27...	33.0	.70	27.5	4.2	6.7	67	560
28...	34.0	1.0	26.8	2.6	6.6	67	540
OCT							
18...	20.5	.70	20.0	6.3	6.7	64	580
19...	17.5	1.0	19.5	6.5	6.6	64	605
NOV							
27...	17.0	.70	16.3	4.6	6.4	62	540
28...	13.0	1.0	16.5	6.5	7.2	60	555
JAN , 1979							
22...	5.5	1.0	6.9	9.9	6.7	76	530
MAR							
19...	17.2	1.0	12.0	8.7	6.4	55	600
19...	26.0	.70	13.8	9.3	6.3	53	580
APR							
30...	19.0	1.0	17.5	7.0	6.0	44	650
MAY							
02...	14.5	.70	17.5	7.1	5.9	45	675
JUN							
11...	24.0	.70	25.5	7.5	6.4	53	600
11...	28.0	1.0	23.0	5.3	6.4	53	470
JUL							
23...	31.0	.70	25.5	4.9	6.3	60	395
23...	25.0	1.0	23.5	2.1	6.3	70	470
AUG							
20...	31.5	.70	25.3	3.1	6.3	73	270
20...	33.9	1.0	25.6	3.2	6.6	70	190
SEP							
16...	23.0	.70	25.7	6.7	6.4	75	575
17...	19.0	1.0	24.9	4.8	6.6	73	425
OCT							
14...	21.0	.70	20.8	7.3	6.4	69	590
15...	9.2	1.0	20.2	6.4	6.6	78	525
DEC							
09...	16.0	.70	12.3	9.5	5.9	73	525
10...	3.0	1.0	11.4	8.1	5.4	74	575

CH-01A (02339500) Chattahoochee River at West Point, Ga., 1978 and 1979

DATE	TEMPERATURE, AIR (DEG C)	SAMPLING DEPTH (M)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	PH (UNITS)	SPECIFIC CONDUCTANCE (MICROMHOS)	OXIDATION REDUCTION POTENTIAL (MV)
APR , 1978							
09...	26.0	.70	18.0	10.0	7.1	57	540
13...	15.0	1.0	15.4	8.2	6.2	61	490
MAY							
01...	27.0	1.0	16.1	6.3	5.7	53	450
14...	27.0	.70	20.6	8.3	5.4	58	545
30...	21.5	.70	21.7	6.2	6.4	54	445
30...	28.0	1.0	19.3	3.0	5.5	54	495
JUL							
09...	27.0	.70	28.0	3.3	6.9	60	500
10...	30.0	1.0	23.0	2.0	6.4	68	380
AUG							
13...	28.6	.70	26.6	6.0	7.0	67	330
14...	27.0	1.0	25.5	3.0	6.3	74	450
27...	33.0	.70	27.8	5.2	6.6	68	585
28...	34.0	1.0	26.0	2.0	6.6	66	555
OCT							
18...	21.0	.70	19.7	7.1	6.8	69	555
19...	17.5	1.0	19.5	6.3	6.7	64	600
NOV							
27...	17.0	.70	15.9	6.3	6.7	62	540
28...	13.0	1.0	16.3	6.5	6.8	60	555
JAN , 1979							
22...	5.5	1.0	7.0	10.0	6.6	71	575
MAR							
19...	18.6	1.0	12.4	9.1	6.3	55	570
19...	28.0	.70	13.4	9.2	6.4	54	570
APR							
30...	22.0	1.0	17.6	7.4	6.1	44	615
MAY							
02...	17.0	.70	17.4	7.6	6.0	45	665
JUN							
11...	26.0	.70	23.2	7.3	6.7	55	570
11...	26.0	1.0	22.8	5.6	6.4	54	540
JUL							
23...	29.0	.70	25.7	5.4	6.7	60	510
23...	26.0	1.0	24.0	2.2	6.1	68	500
AUG							
20...	34.7	.70	25.6	3.2	6.5	71	235
20...	34.6	1.0	26.0	3.4	6.6	69	205
SEP							
16...	22.0	.70	25.5	6.2	6.6	73	575
17...	18.0	1.0	25.0	5.0	6.5	73	510
OCT							
14...	21.0	.70	20.3	8.3	6.6	68	545
15...	13.0	1.0	20.2	6.4	6.6	74	550
DEC							
09...	17.5	.70	11.9	9.9	6.1	70	570
10...	7.0	1.0	11.6	8.0	6.5	68	550

CH-018 (02339550) Chattahoochee River (city of Lanett intake) at Lanett, Ala., 1978 and 1979

DATE	TEMPER-ATURE, AIR (DEG C)	SAM-PLING DEPTH (M)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	PH (UNITS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	OXID-ATION RED-UCTION POTEN-TIAL (MV)
APR , 1978							
09...	26.0	.70	18.0	10.6	7.1	53	540
13...	15.0	1.0	15.4	7.9	6.3	62	470
MAY							
01...	26.0	1.0	15.8	6.0	5.6	55	520
14...	25.0	.70	21.1	8.1	6.0	58	530
30...	23.4	.70	22.0	6.6	6.8	55	465
30...	28.0	1.0	19.5	3.3	6.4	54	485
JUL							
09...	28.0	.70	29.2	2.2	7.0	63	520
10...	30.0	1.0	22.5	2.1	6.4	68	385
AUG							
13...	28.0	.70	27.7	5.4	6.8	65	570
14...	27.0	1.0	26.0	2.8	6.3	74	470
27...	33.0	.70	28.6	5.6	6.7	67	575
28...	34.0	1.0	25.5	2.3	6.4	66	555
OCT							
18...	21.5	.70	20.4	7.1	6.7	67	580
19...	17.0	1.0	19.5	6.1	6.7	66	575
NOV							
27...	17.0	.70	16.4	5.9	6.8	61	555
28...	13.0	1.0	16.2	6.8	6.5	60	565
JAN , 1979							
22...	7.0	1.0	7.0	10.1	6.7	77	570
MAR							
19...	23.0	1.0	12.4	8.7	6.5	55	600
19...	27.4	.70	13.8	9.0	6.4	54	555
APR							
30...	19.5	1.0	17.6	7.3	6.1	44	610
MAY							
02...	17.0	.70	17.2	7.6	6.2	46	640
JUN							
11...	25.5	.70	22.8	7.3	6.7	56	565
11...	29.0	1.0	22.8	5.5	6.4	54	530
JUL							
23...	29.0	.70	25.4	6.0	6.8	58	505
23...	28.0	1.0	23.0	2.2	6.2	68	520
AUG							
20...	33.0	.70	26.7	4.1	6.5	66	250
20...	36.0	1.0	26.2	3.4	6.7	68	225
SEP							
16...	26.0	.70	25.1	6.3	6.6	72	565
17...	--	1.0	24.8	5.3	6.5	73	545
OCT							
14...	21.0	.70	19.9	8.6	6.6	67	560
15...	13.0	1.0	20.1	6.8	6.7	72	545
DEC							
09...	17.2	.70	11.8	10.2	5.9	71	565
10...	9.0	1.0	11.6	8.1	6.6	67	540

CH-01C (02339560) Chattahoochee River above junction of Long Cane Creek, near West Point, Ga., 1978 and 1979

DATE	TEMPER-ATURE, AIR (DEG C)	SAM-PLING DEPTH (M)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	PH (UNITS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	OXID-ATION RED-UCTION POTEN-TIAL (MV)
APR , 1978							
09...	25.0	.70	18.5	11.0	7.2	61	500
10...	--	.30	--	--	--	--	--
14...	--	.30	--	--	--	--	--
MAY							
01...	25.5	1.0	15.5	5.7	6.0	54	505
14...	24.5	.70	21.1	8.8	--	58	--
30...	26.0	.70	20.5	5.3	6.8	63	460
30...	27.5	1.0	19.3	3.1	6.2	56	490
JUL							
09...	26.5	.70	29.0	2.8	6.9	65	525
10...	28.5	1.0	26.5	5.0	6.6	64	480
AUG							
13...	26.2	.70	28.0	5.9	6.8	70	570
14...	27.0	1.0	26.0	2.8	6.3	74	480
27...	33.0	.70	28.0	5.8	6.8	71	570
28...	33.0	1.0	25.5	2.3	6.2	67	570
OCT							
18...	22.0	.70	20.4	7.1	6.8	70	575
19...	17.0	1.0	19.3	6.3	6.7	68	585
NOV							
27...	17.0	.70	16.5	6.0	6.5	66	590
28...	13.0	1.0	16.0	6.8	6.6	61	515
JAN , 1979							
22...	6.5	1.0	7.1	10.1	6.6	75	580
MAR							
19...	24.5	1.0	12.4	8.9	6.1	55	585
19...	25.0	.70	13.5	9.3	6.3	60	570
APR							
30...	24.0	1.0	17.6	7.3	6.2	45	630
MAY							
02...	18.0	.70	17.3	7.4	6.0	53	650
JUN							
11...	26.0	.70	23.5	7.8	6.8	65	560
11...	24.0	1.0	22.5	5.8	6.4	56	550
JUL							
23...	29.0	.70	24.0	5.7	6.4	70	560
23...	29.0	1.0	24.0	2.9	5.7	66	620
AUG							
20...	26.0	.70	25.0	3.2	6.2	85	290
20...	36.8	1.0	26.3	3.6	6.5	74	245
SEP							
16...	20.0	.70	24.4	6.5	6.8	75	550
17...	19.0	1.0	24.8	5.1	6.5	73	565
OCT							
14...	21.0	.70	19.3	8.3	6.7	70	540
15...	13.0	1.0	20.0	6.4	6.6	72	555
DEC							
09...	14.8	.70	11.4	9.9	6.4	75	590
10...	9.0	1.0	11.6	8.1	6.7	67	520

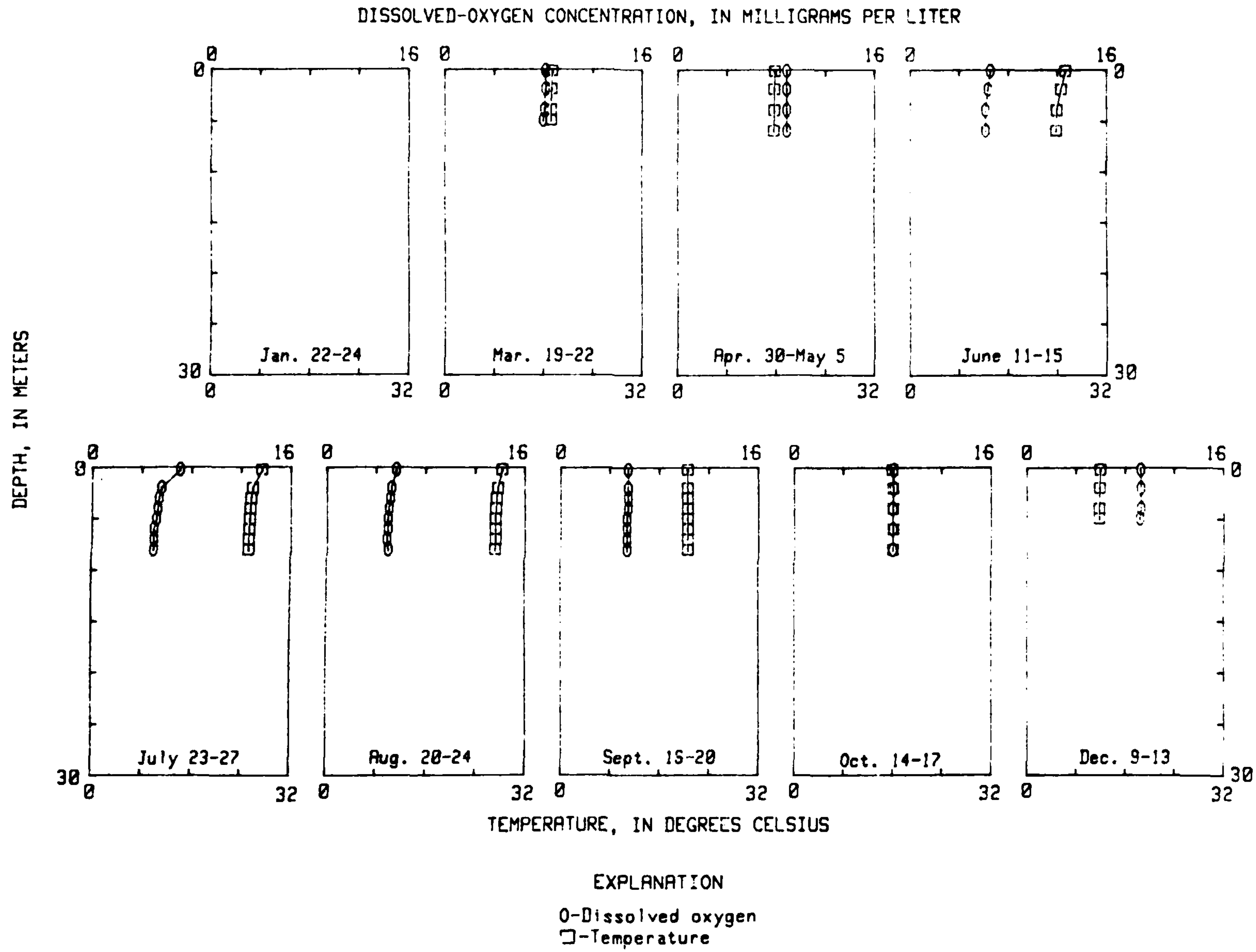
CH-01D (02339780) Chattahoochee River at Langdale, Ala., 1978 and 1979

DATE	TEMPER-ATURE, AIR (DEG C)	SAM-PLING DEPTH (M)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	PH (UNITS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	OXID-ATION RED-UCTION POTEN-TIAL (MV)
APR , 1978							
09...	25.0	.70	19.5	10.1	6.9	64	510
MAY							
01...	23.0	1.0	15.6	6.0	5.9	53	480
14...	21.0	.70	20.4	8.0	--	59	--
30...	27.0	.70	20.5	4.9	6.6	64	470
30...	26.0	1.0	20.9	4.6	5.9	56	495
JUL							
09...	28.3	.70	28.6	4.9	7.0	66	530
10...	28.0	1.0	25.5	3.1	6.5	72	485
AUG							
13...	25.4	.70	27.6	5.6	6.6	72	570
14...	27.0	1.0	26.0	2.6	6.3	75	510
27...	33.0	.70	28.9	6.6	7.0	76	565
28...	35.0	1.0	25.5	2.5	6.2	68	580
OCT							
18...	22.0	.70	20.3	7.2	6.8	68	580
19...	17.0	1.0	19.0	6.8	6.8	68	580
NOV							
27...	17.0	.70	16.5	6.5	6.6	64	595
28...	13.0	1.0	15.8	7.1	6.6	62	550
JAN , 1979							
22...	6.5	1.0	7.2	10.2	6.8	75	560
MAR							
19...	27.0	1.0	12.6	8.9	6.1	55	565
19...	24.0	.70	13.6	9.2	6.2	60	585
APR							
30...	24.0	1.0	17.8	7.2	6.3	45	605
MAY							
02...	19.0	.70	17.4	7.5	6.0	50	650
JUN							
11...	26.0	.70	24.6	8.2	7.0	63	530
11...	29.0	1.0	23.0	5.8	6.4	55	550
JUL							
23...	29.0	.70	24.4	4.4	6.4	66	480
23...	29.0	1.0	27.0	5.3	5.6	62	630
AUG							
20...	15.5	1.0	26.4	3.6	6.6	68	235
23...	26.0	.70	25.0	3.2	6.5	79	390
SEP							
16...	21.0	.70	24.6	6.1	6.7	74	530
17...	19.0	1.0	24.7	5.2	6.5	73	550
OCT							
14...	21.0	.70	18.8	8.2	6.7	76	545
15...	14.8	1.0	19.7	6.7	6.6	72	560
DEC							
09...	14.5	.70	11.3	10.2	6.4	77	590
10...	13.0	1.0	11.7	8.2	6.7	66	530

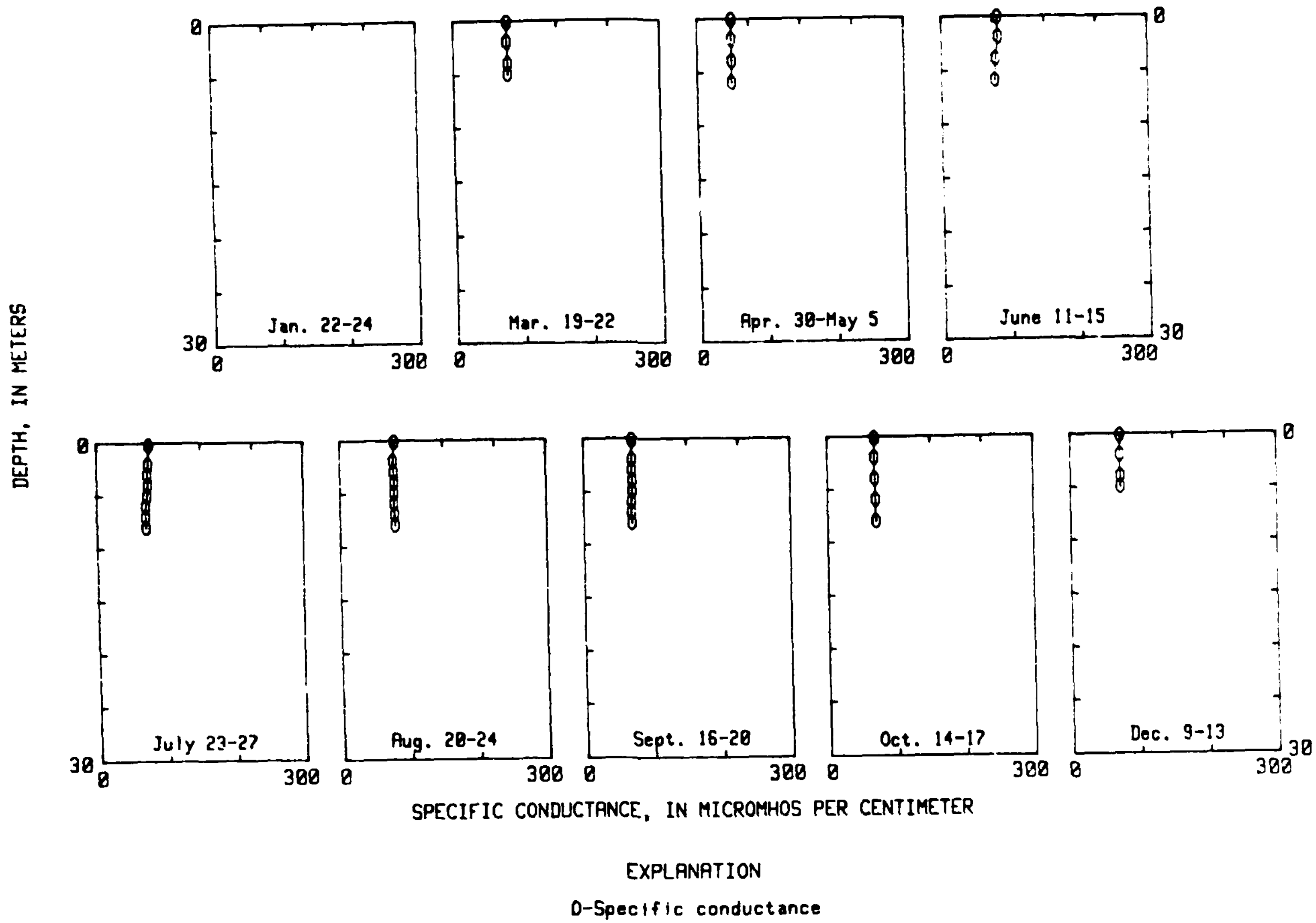
APPENDIX C-2

Graphs showing variations in water-quality on-site measurements with reservoir depth at stations in West Point Reservoir, April 1978-December 1979

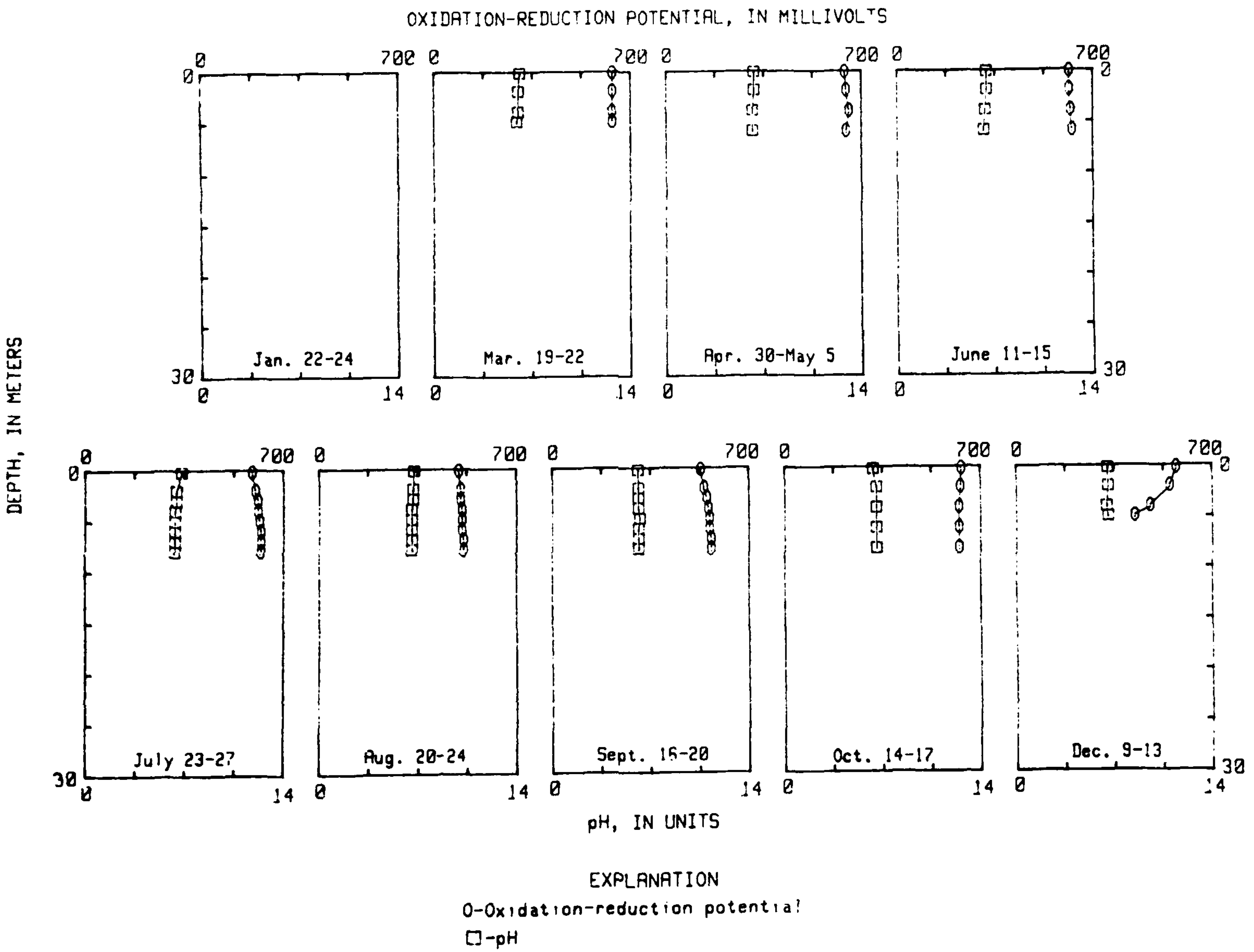
[Water temperature, specific conductance, oxidation-reduction potential, dissolved oxygen, and pH]



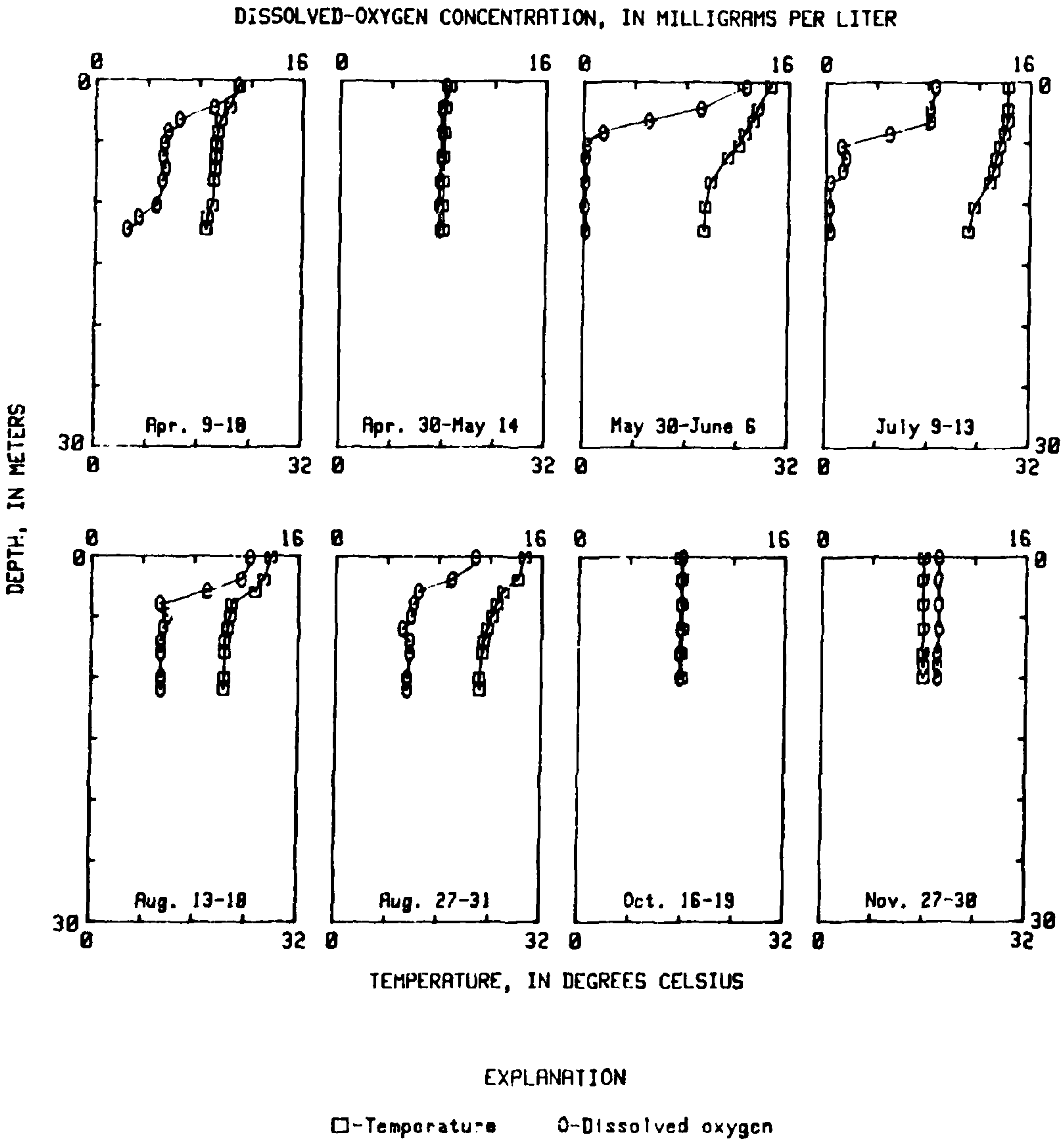
CH-11A (02338570) Chattahoochee River above New River, near Corinth. Ga., 1979



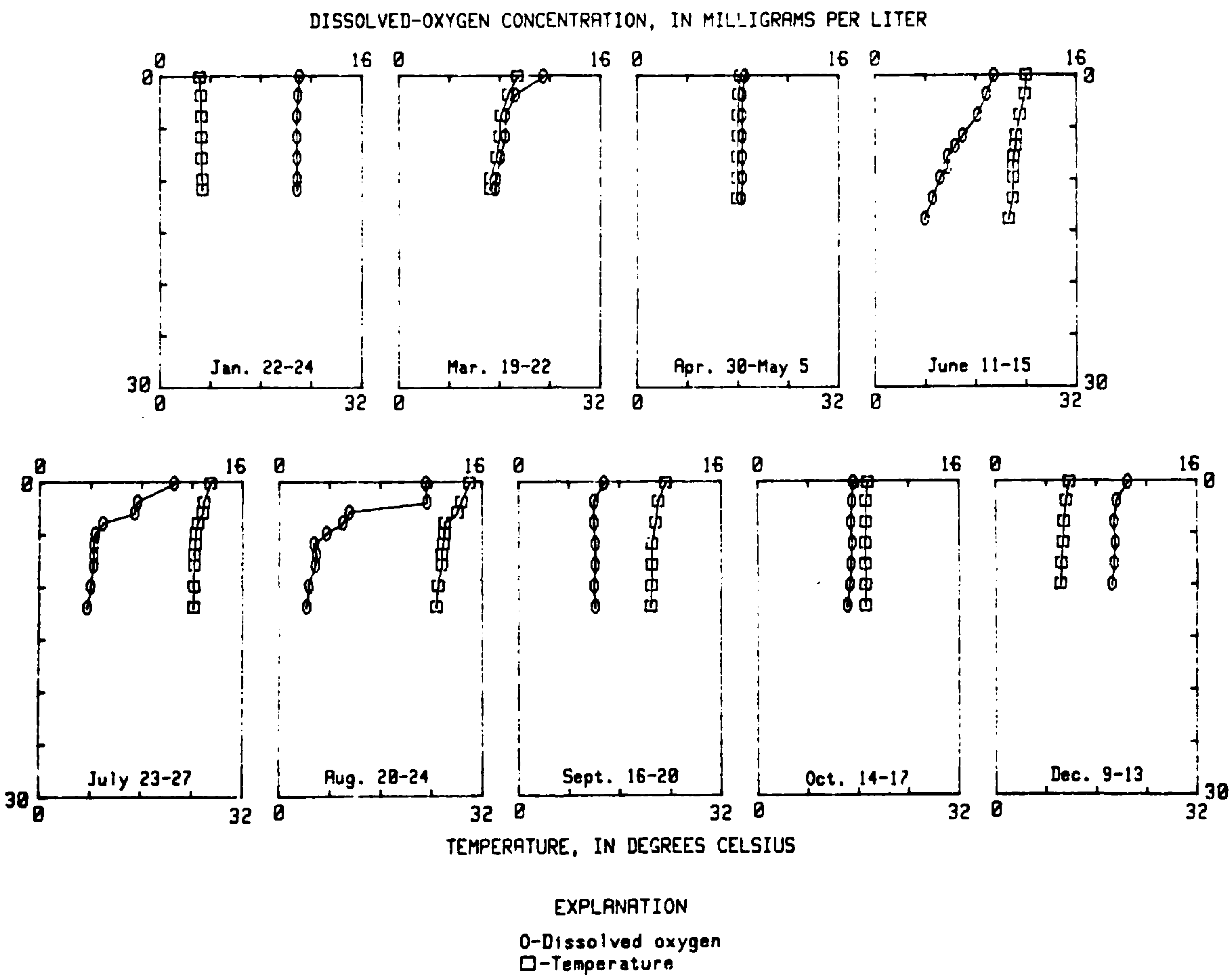
CH-11A (02338570) Chattahoochee River above New River, near Corinth, Ga., 1979



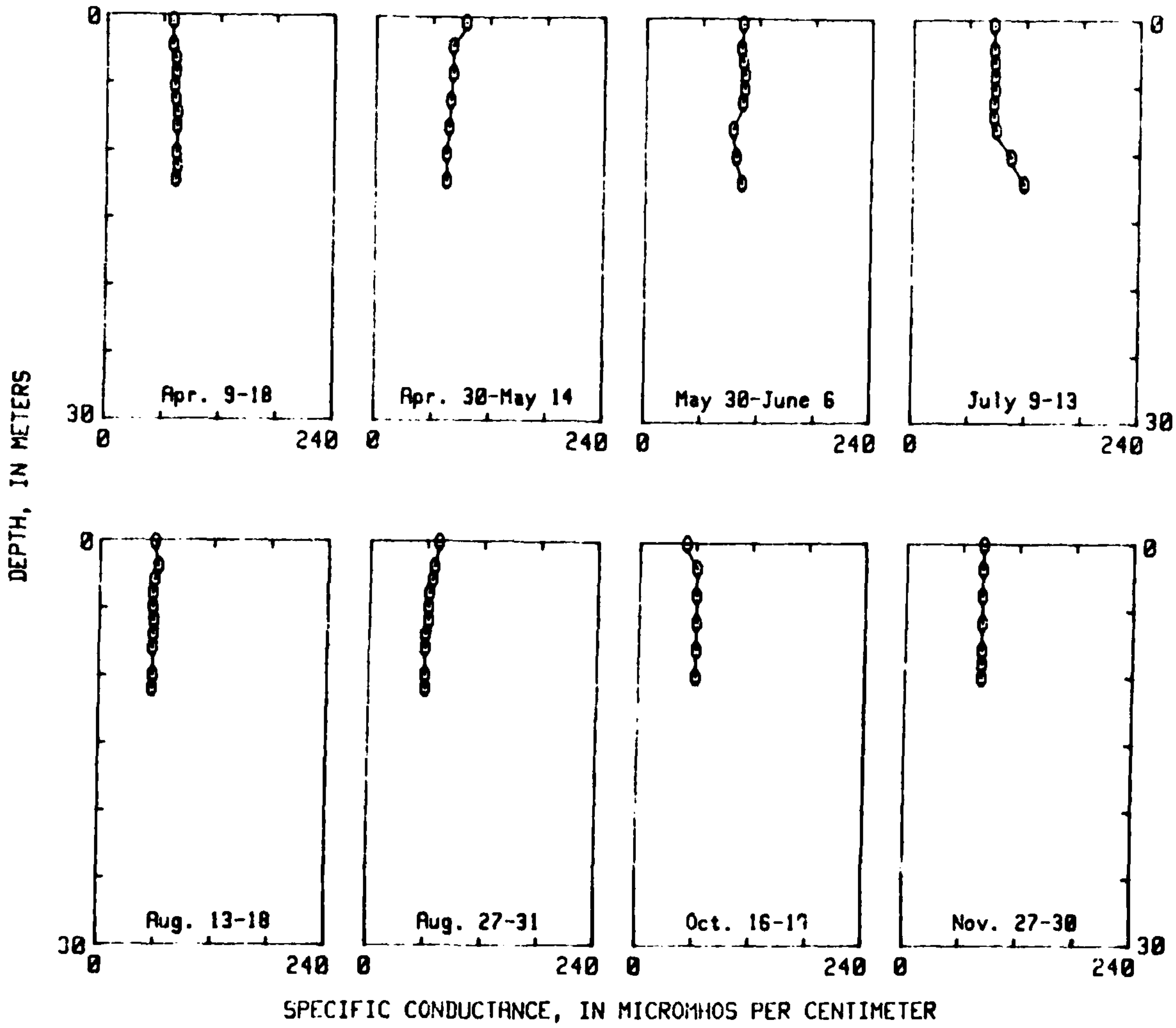
CH-11A (02338570) Chattahoochee River above New River, near Corinth, Ga., 1979



CH-10 (02338710) Chattahoochee River at State Highway 219, near LaGrange, Ga., 1978



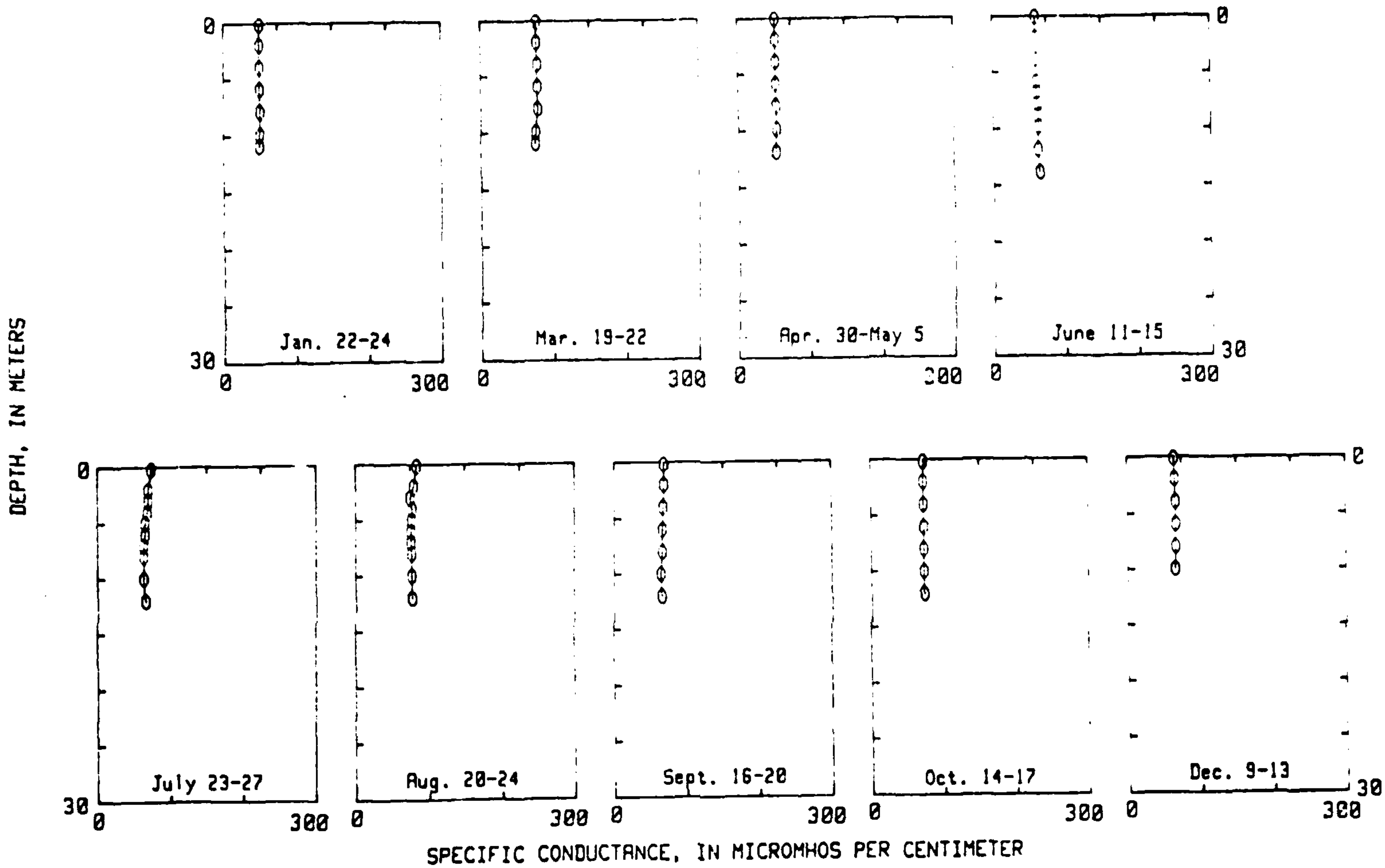
CH-10 (02338710) Chattahoochee River at State Highway 219, near LaGrange, Ga., 1979



EXPLANATION

O-Specific conductance

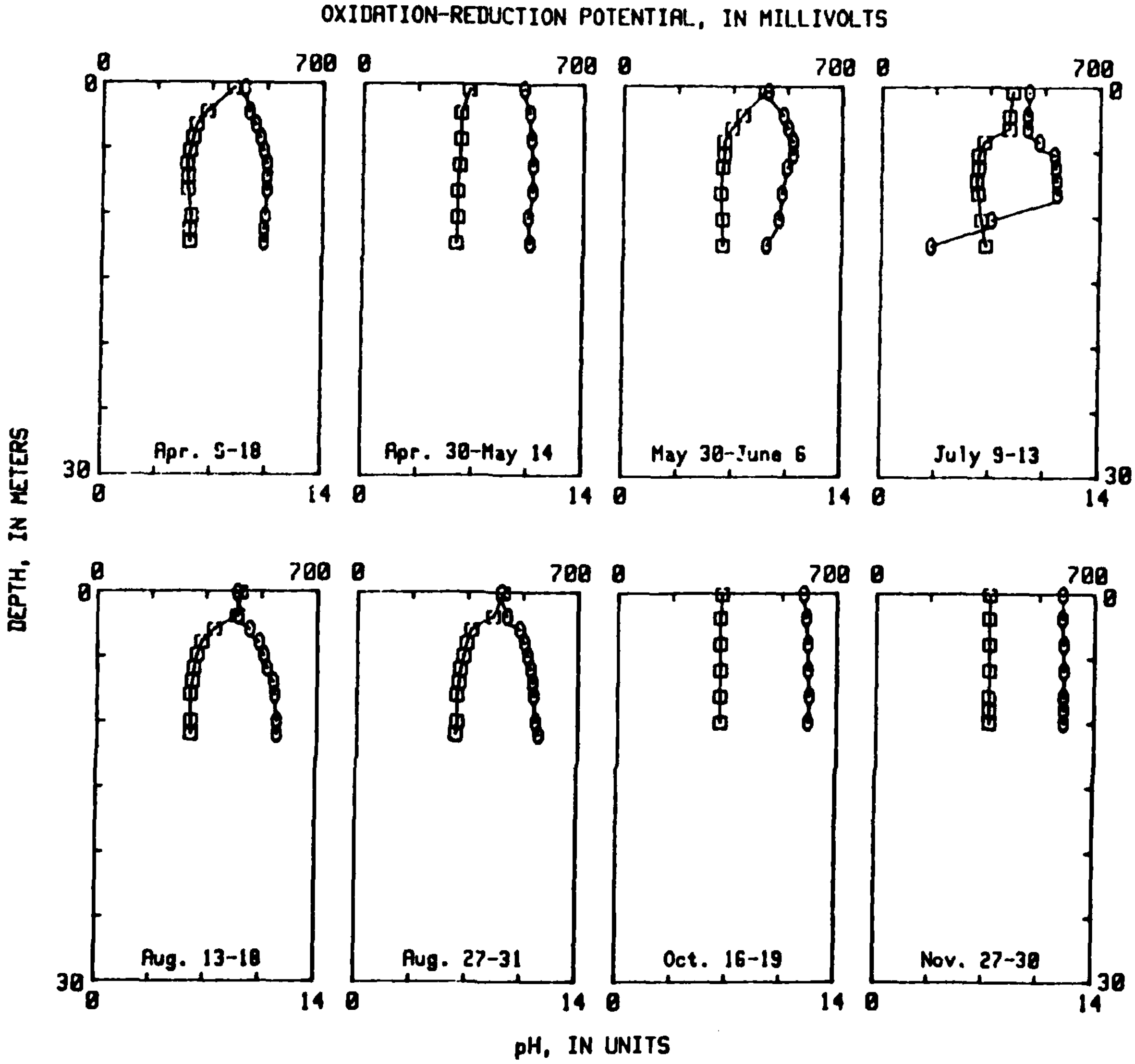
CH-10 (02338710) Chattahoochee River at State Highway 219, near LaGrange, Ga., 1978



EXPLANATION

O-Specific conductance

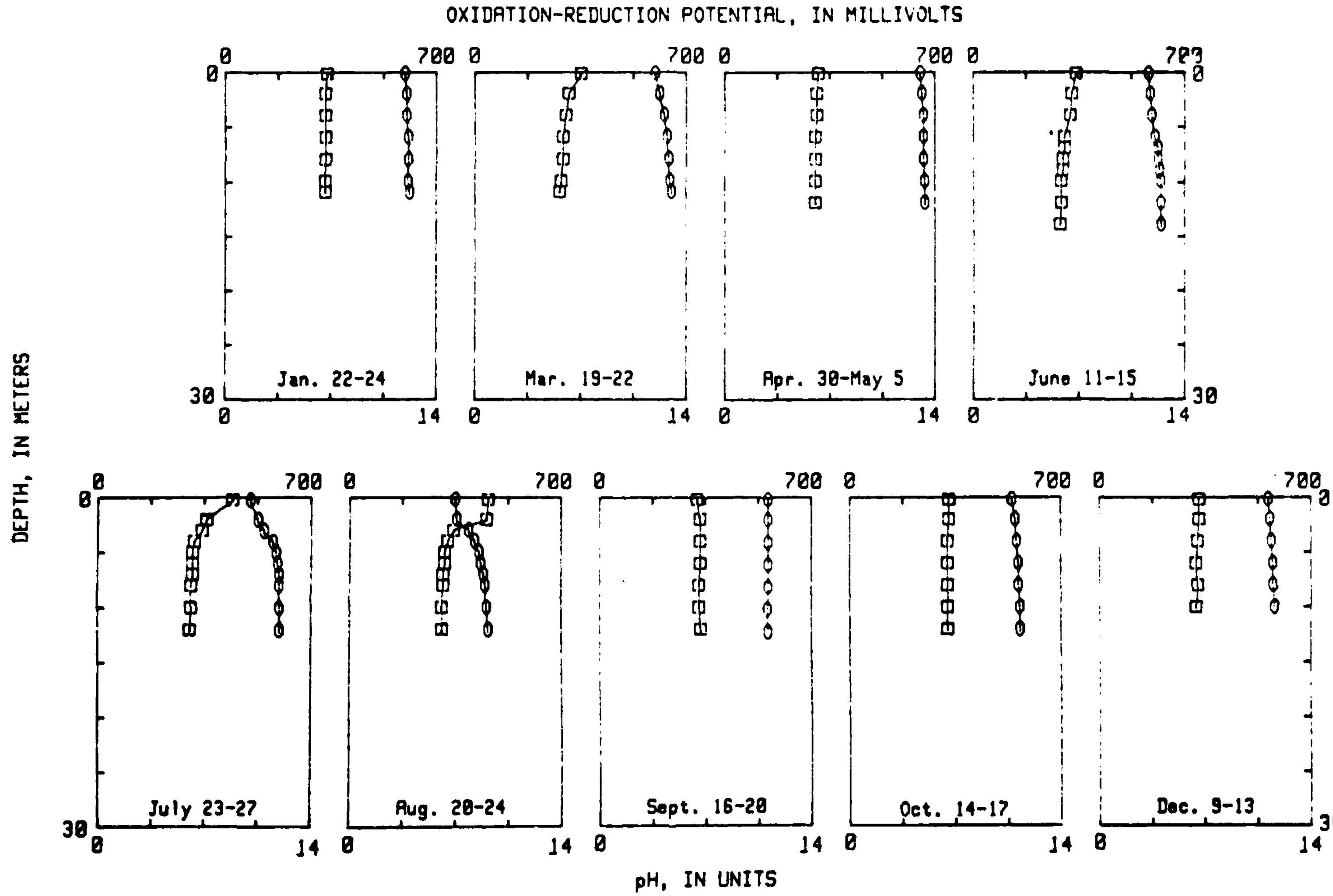
CH-10 (02338710) Chattahoochee River at State Highway 219, near LaGrange, Ga., 1979



EXPLANATION

O-Oxidation-reduction potential
□-pH

CH-10 (02338710) Chattahoochee River at State Highway 219, near LaGrange, Ga., 1978

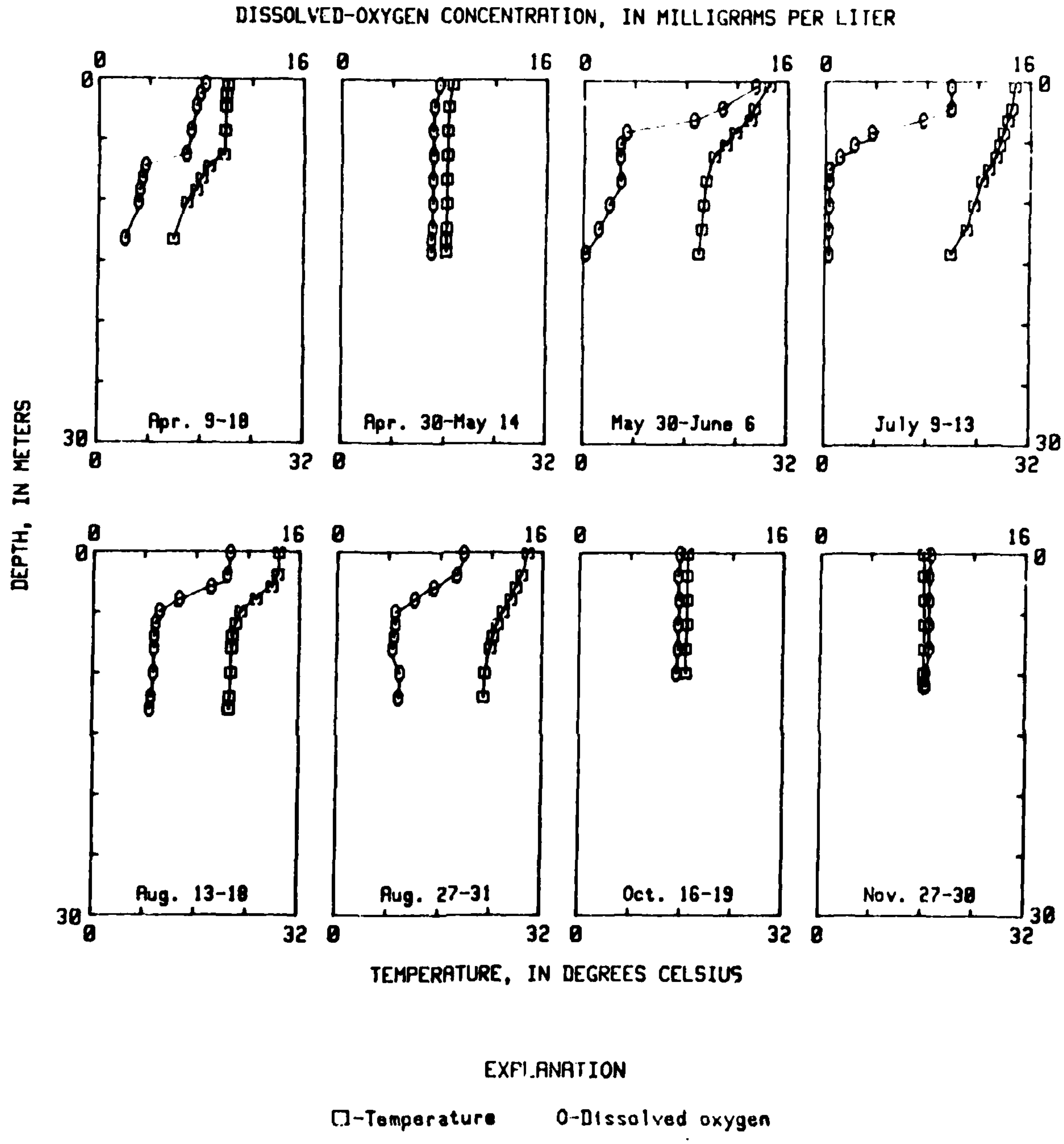


EXPLANATION

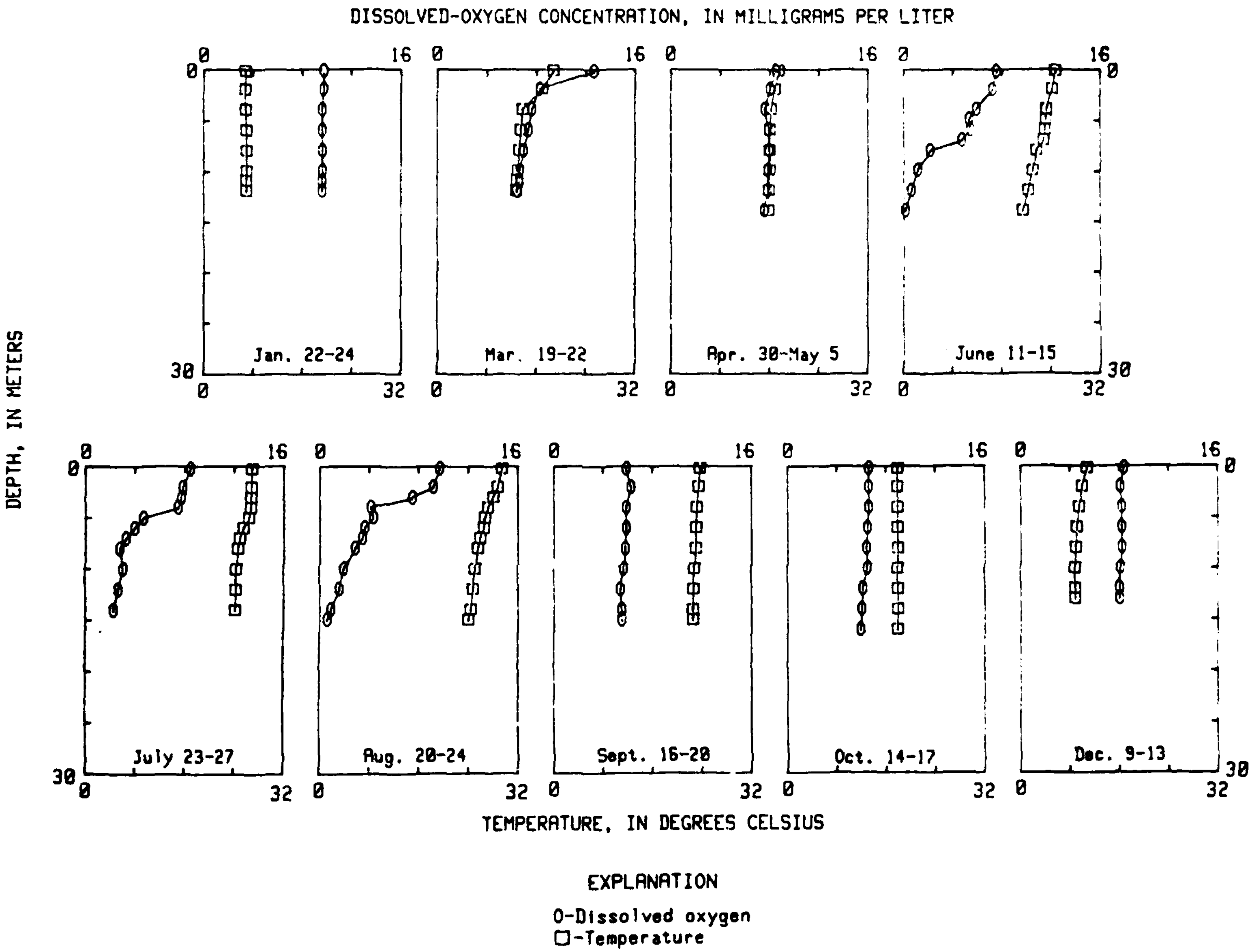
O-Oxidation-reduction potential

□-pH

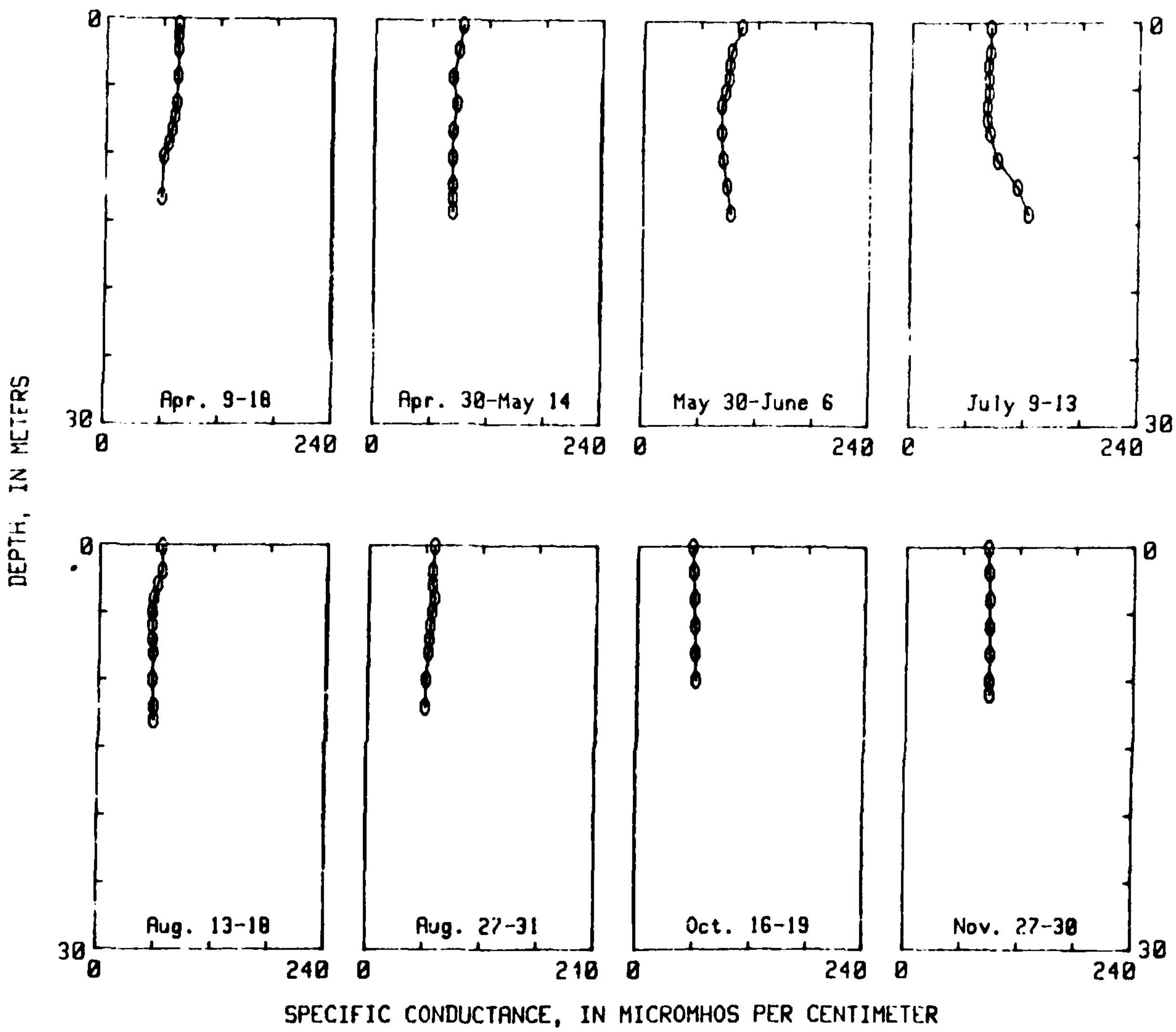
CH-10 (02338710) Chattahoochee River at State Highway 219, near LaGrange, Ga., 1979



CH-07 (02338720) Chattahoochee River (city of LaGrange intake)
near LaGrange, Ga., 1978



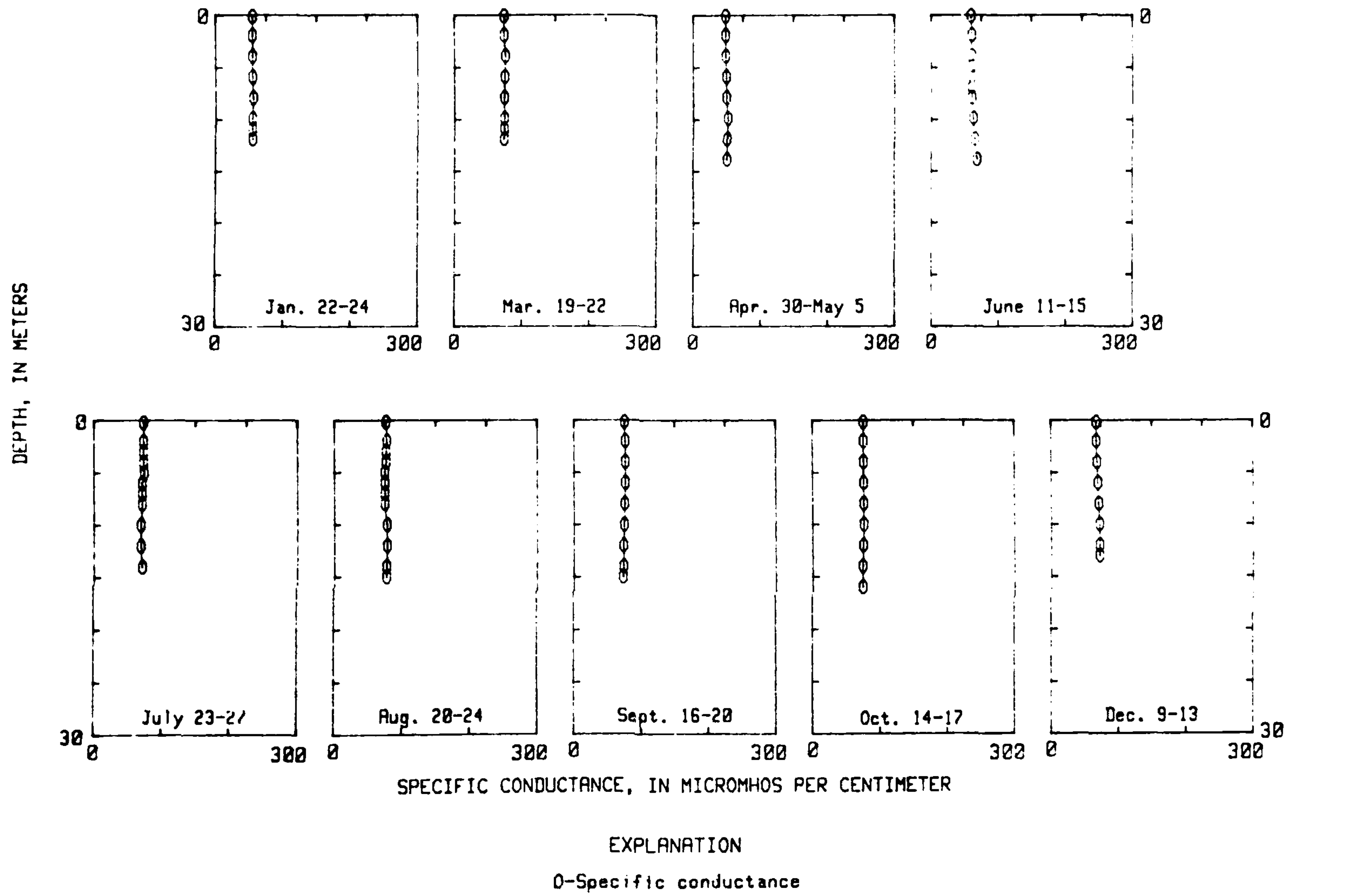
CH-07 (02338720) Chattahoochee River (city of LaGrange intake) near LaGrange, Ga., 1979



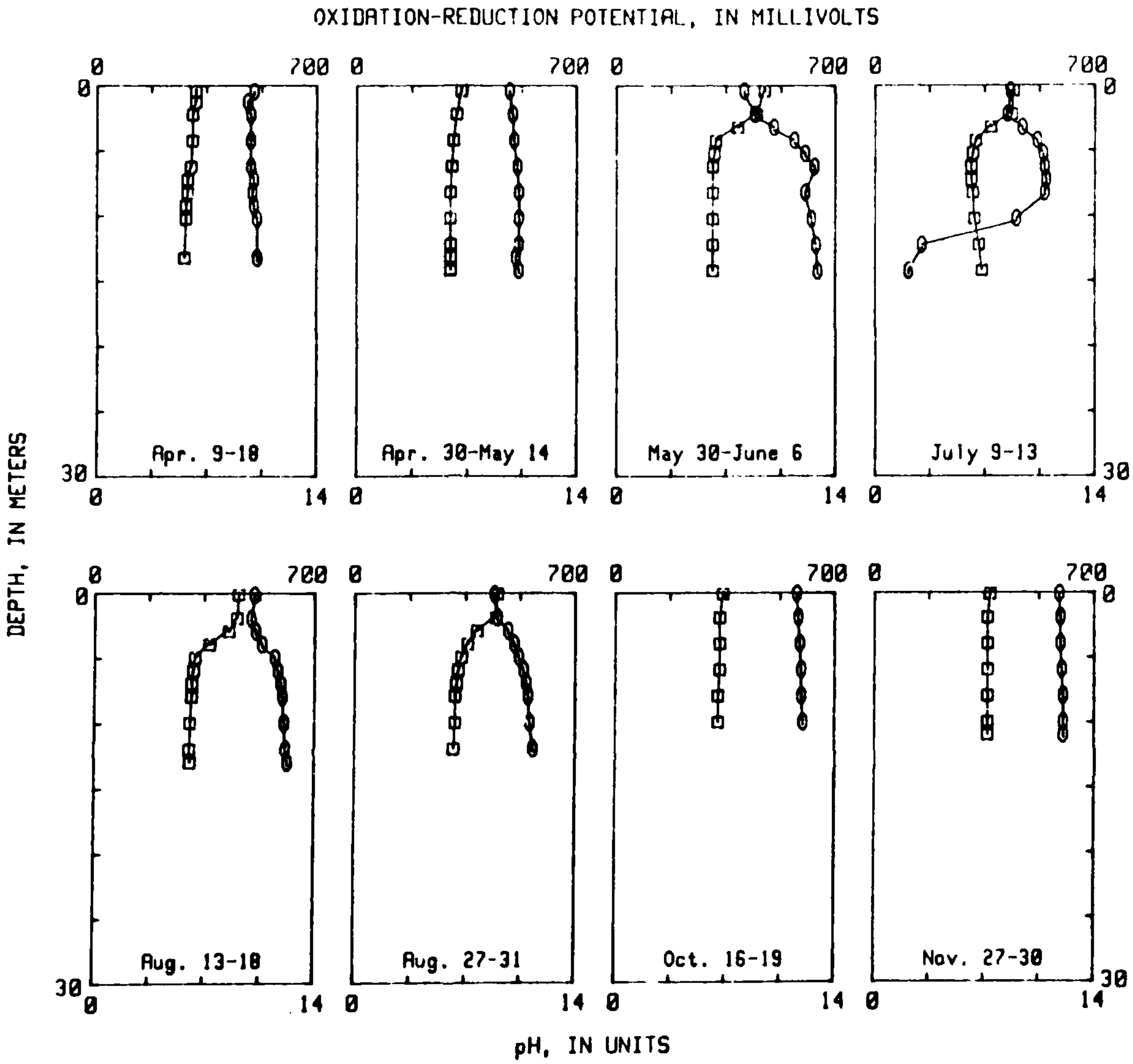
EXPLANATION

O-Specific conductance

CH-07 (02338720) Chattahoochee River (city of LaGrange intake) near LaGrange, Ga., 1978



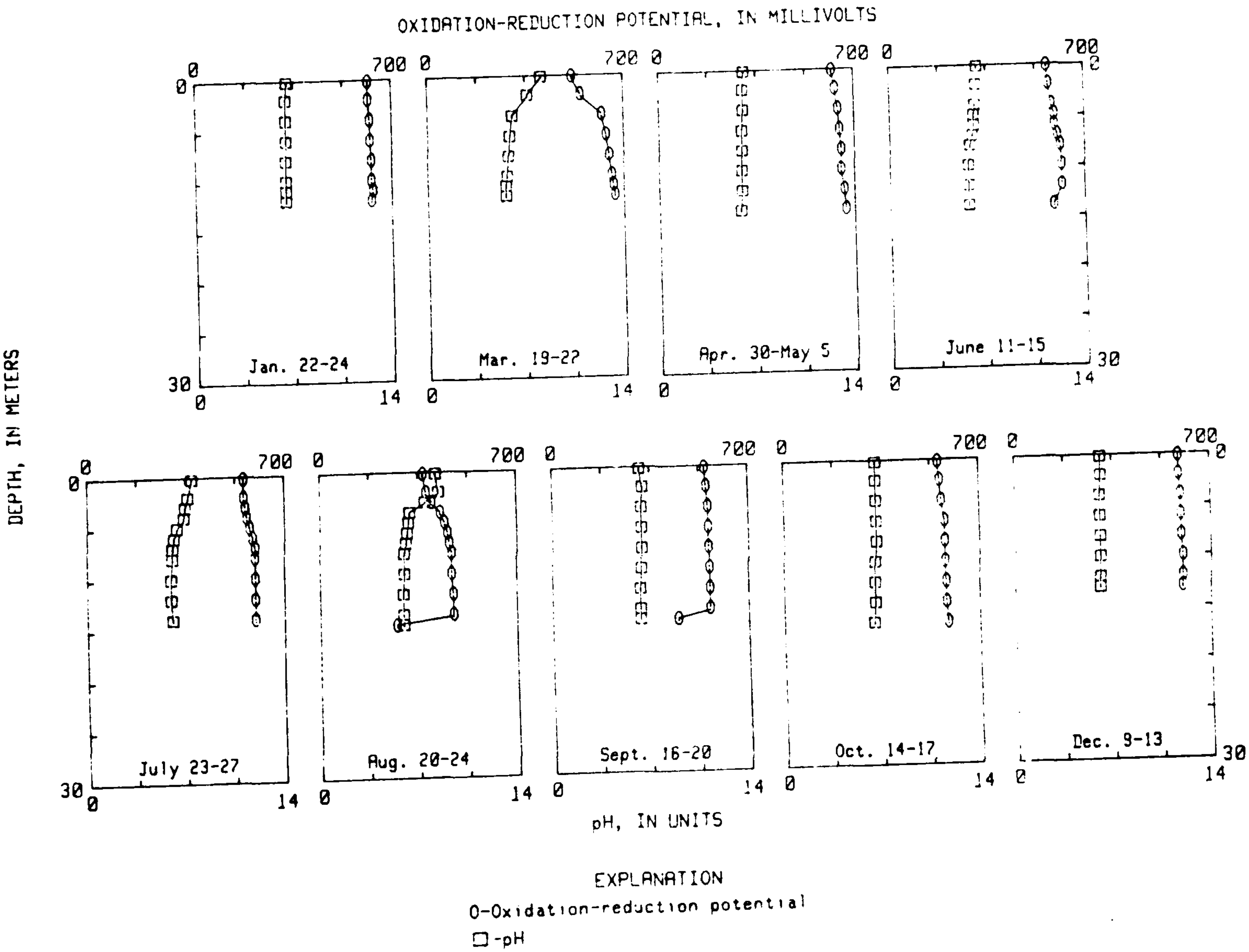
CH-07 (02338720) Chattahoochee River (city of LaGrange intake) near LaGrange, Ga., 1979



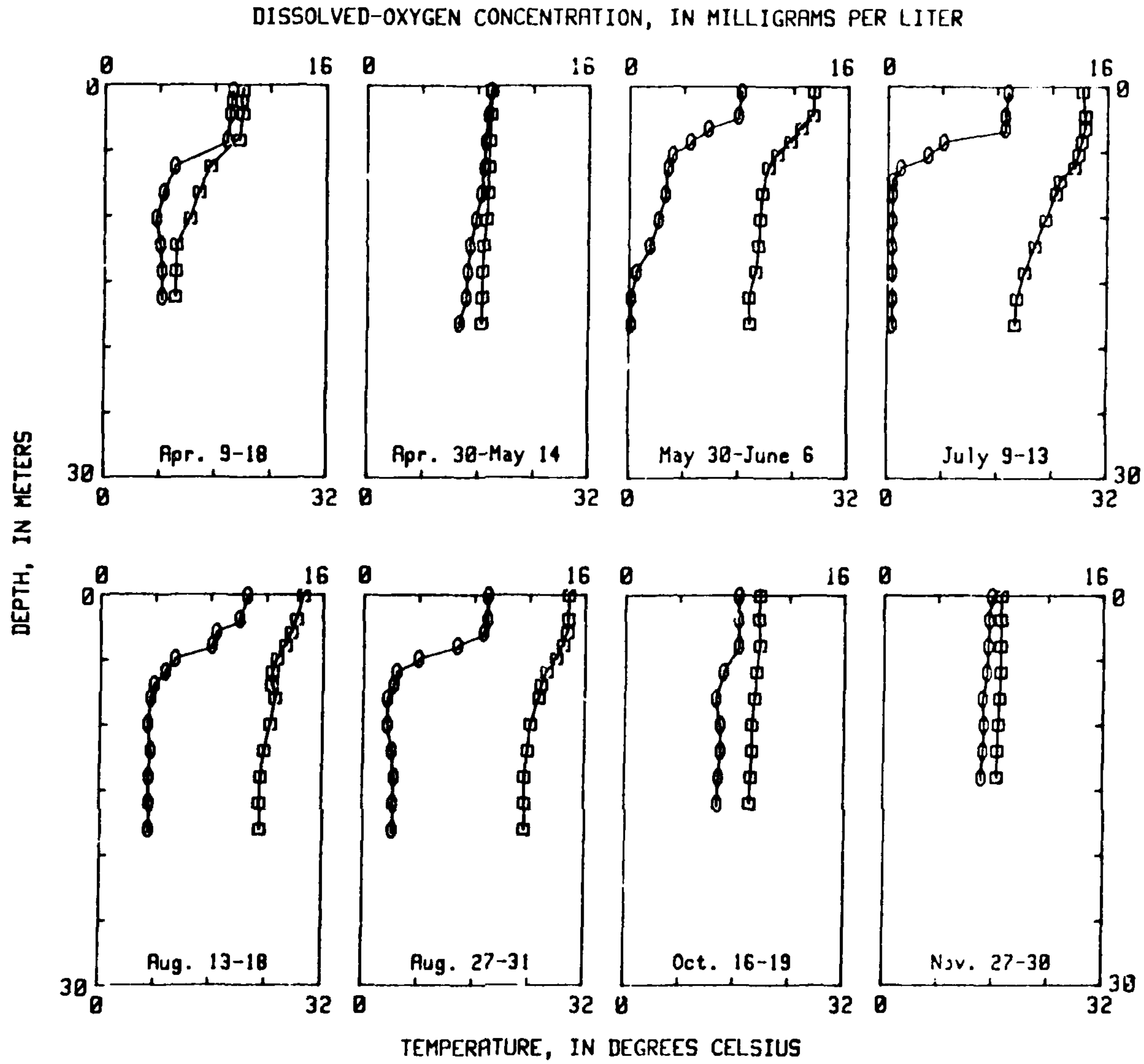
EXPLANATION

O-Oxidation-reduction potential
□-pH

CH-07 (023[illegible]3720) Chattahoochee River (city of LaGrange intake)
near LaGrange, Ga., 1978



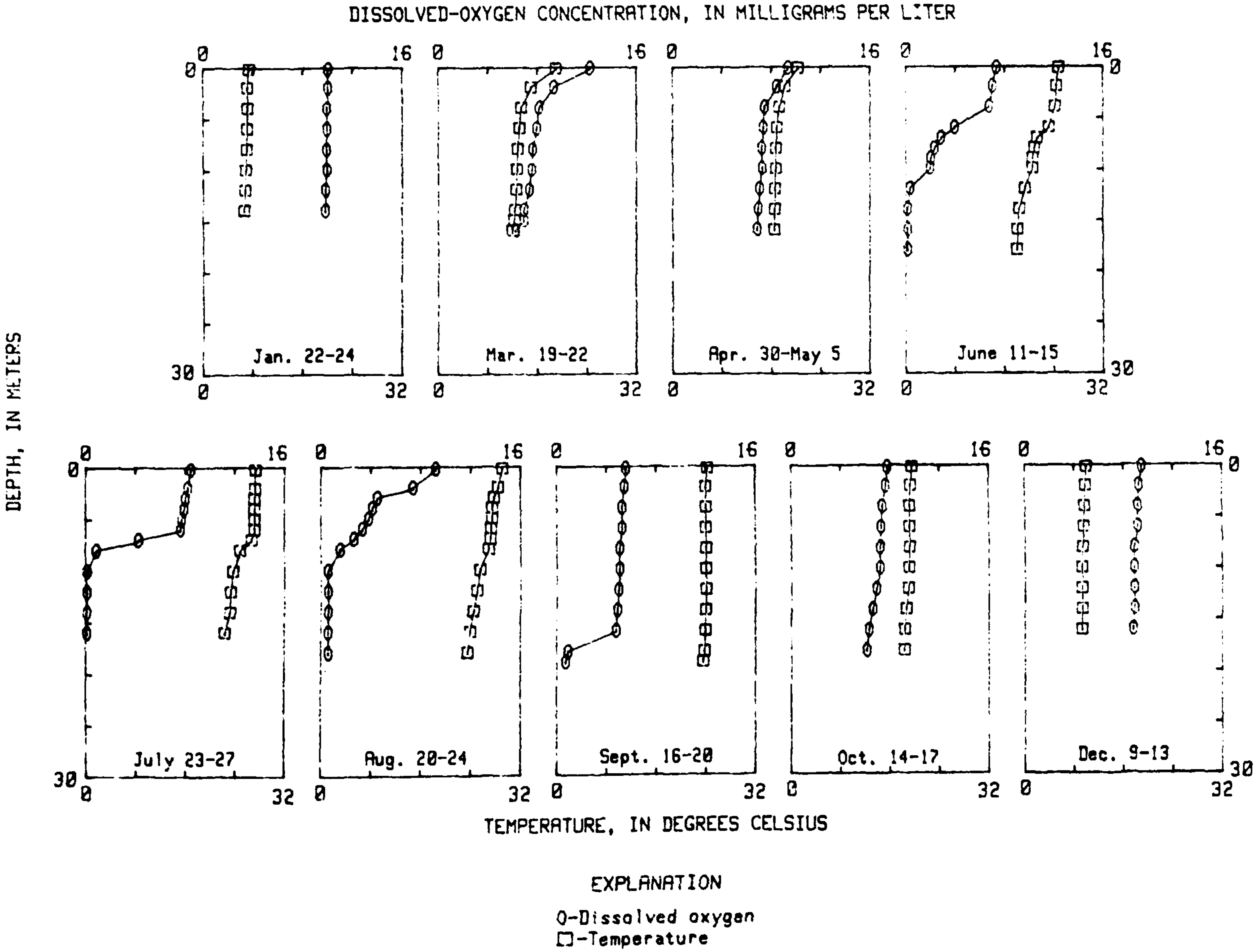
CH-07 (02338720) Chattahoochee River (city of LaGrange intake) near LaGrange, Ga., 1979



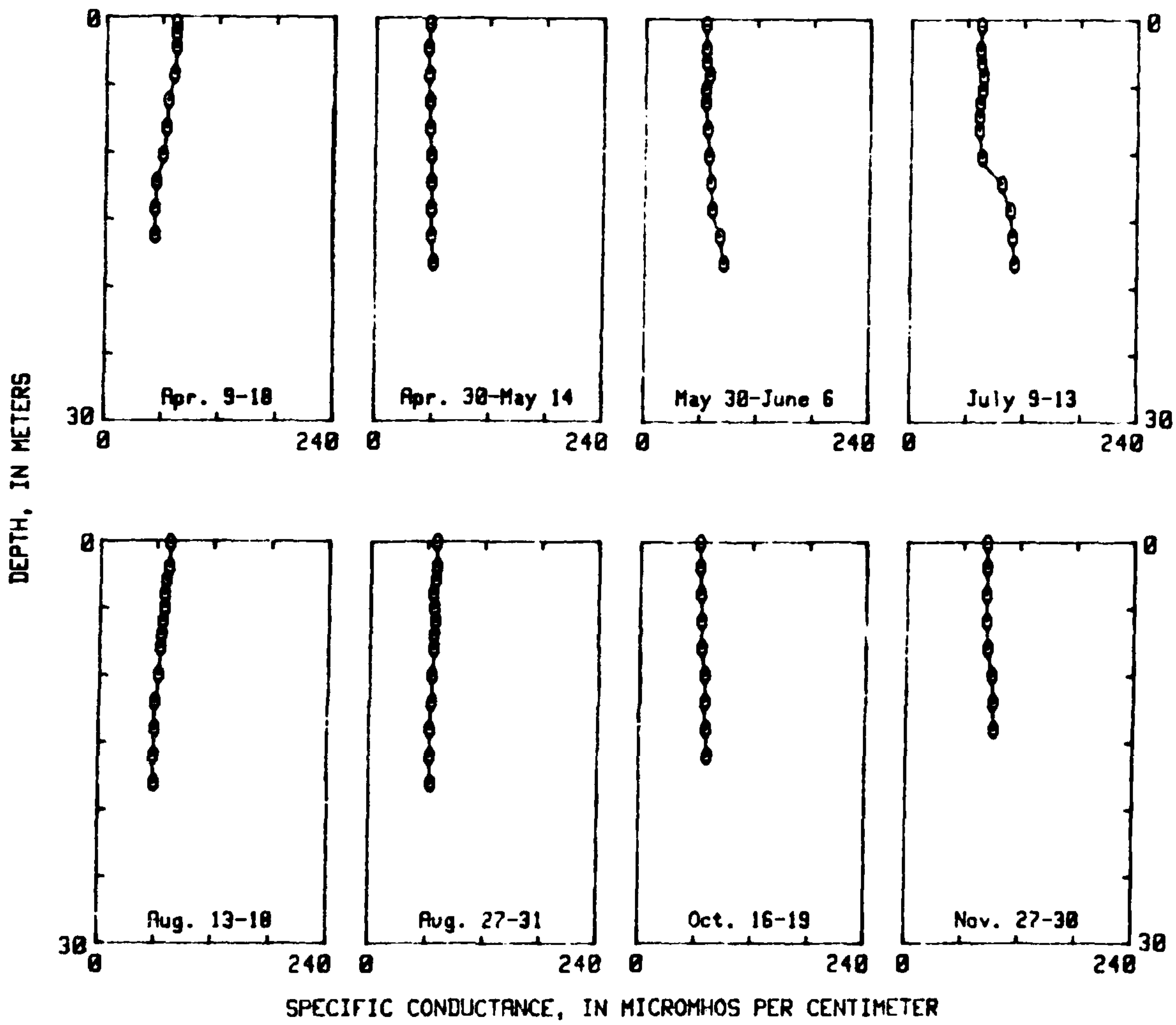
EXPLANATION

□-Temperature   O-Dissolved oxygen

CH-05A (02339190) Chattahoochee River at State Highway 701, near Abbottsford, Ga., 1978



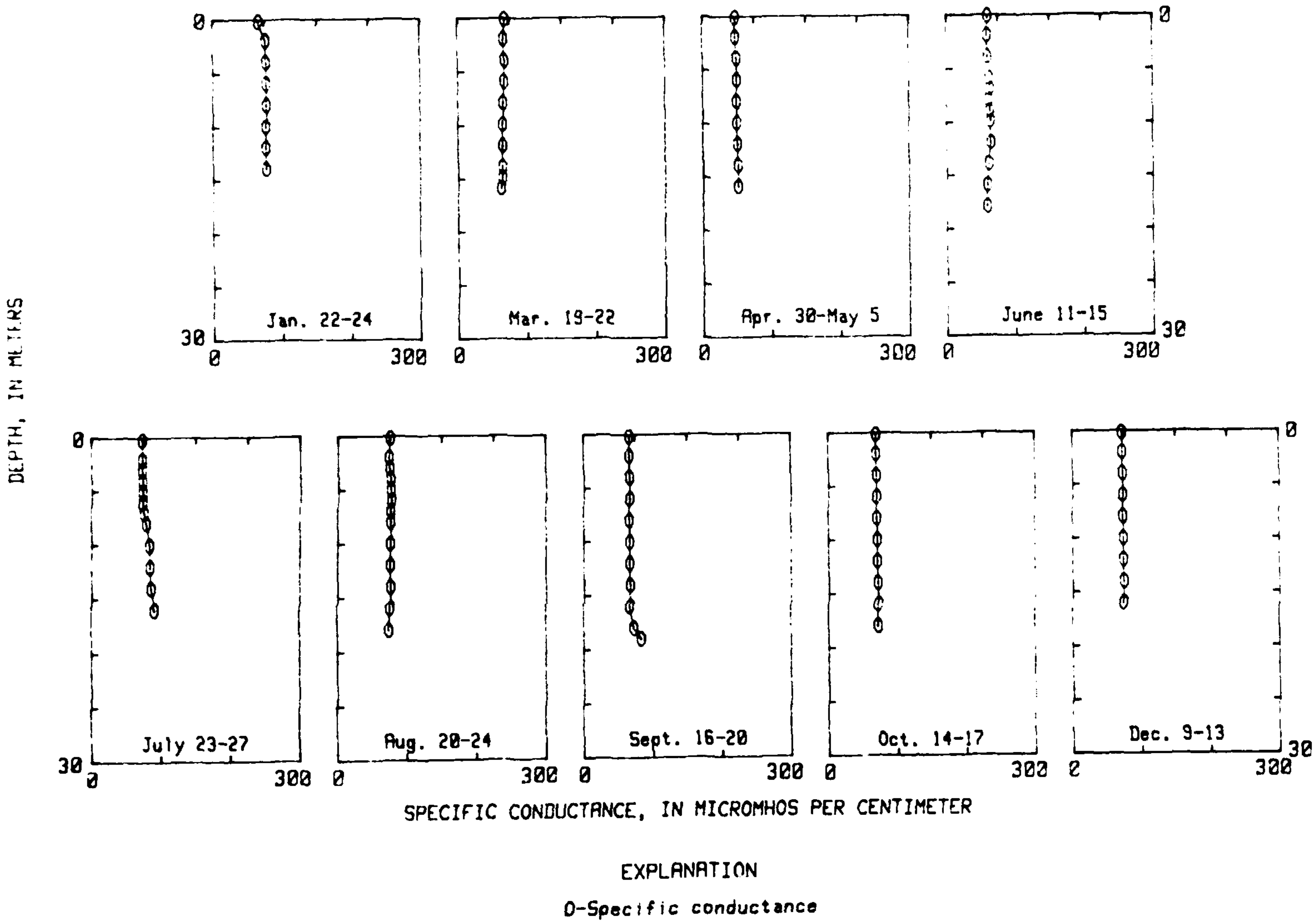
CH-05A (02339190) Chattahoochee River at State Highway 701, near Abbottsford, Ga., 1979



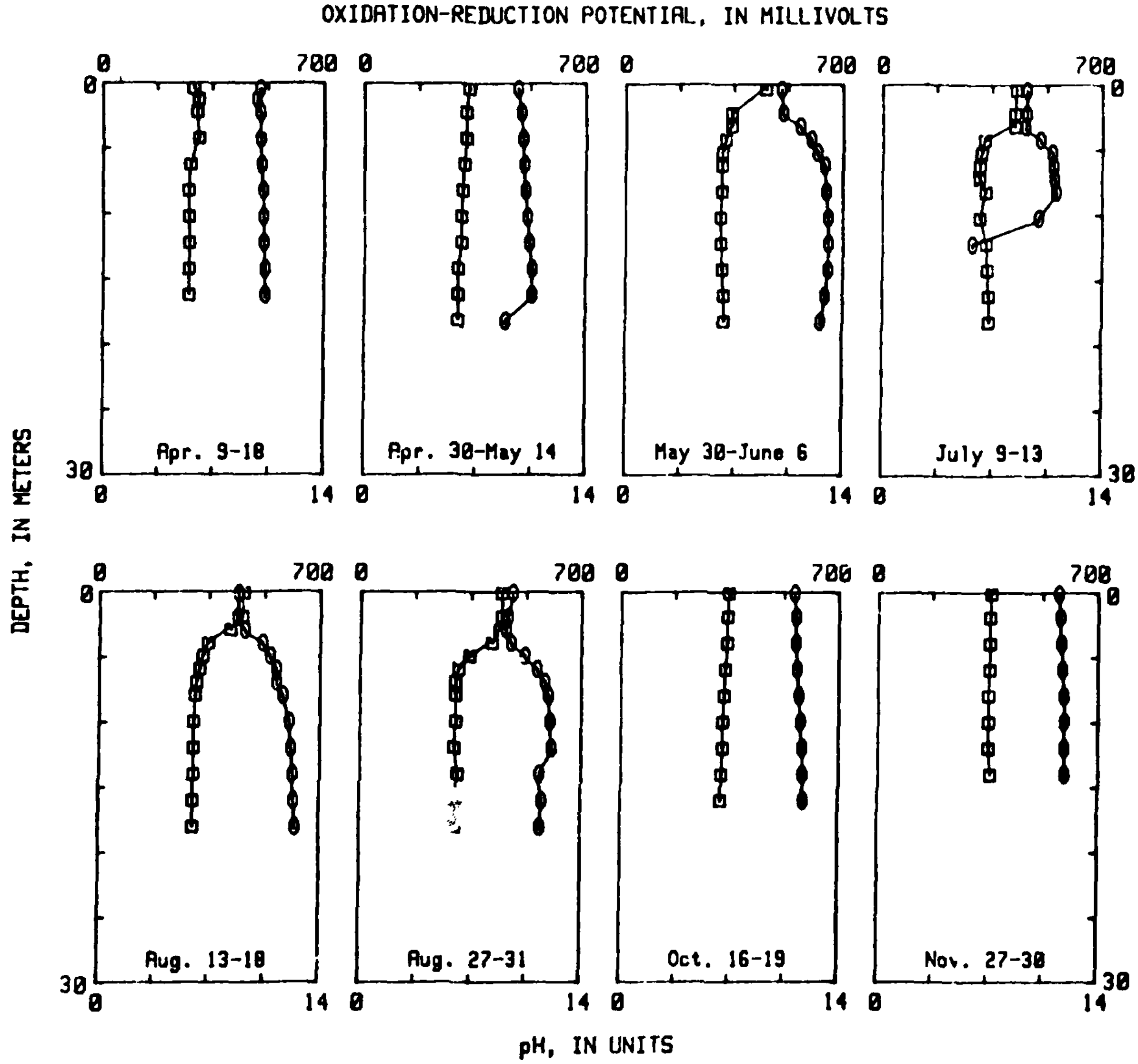
EXPLANATION

O-Specific conductance

CH-05A (02339190) Chattahoochee River at State Highway 701, near Abbottsford, Ga., 1978



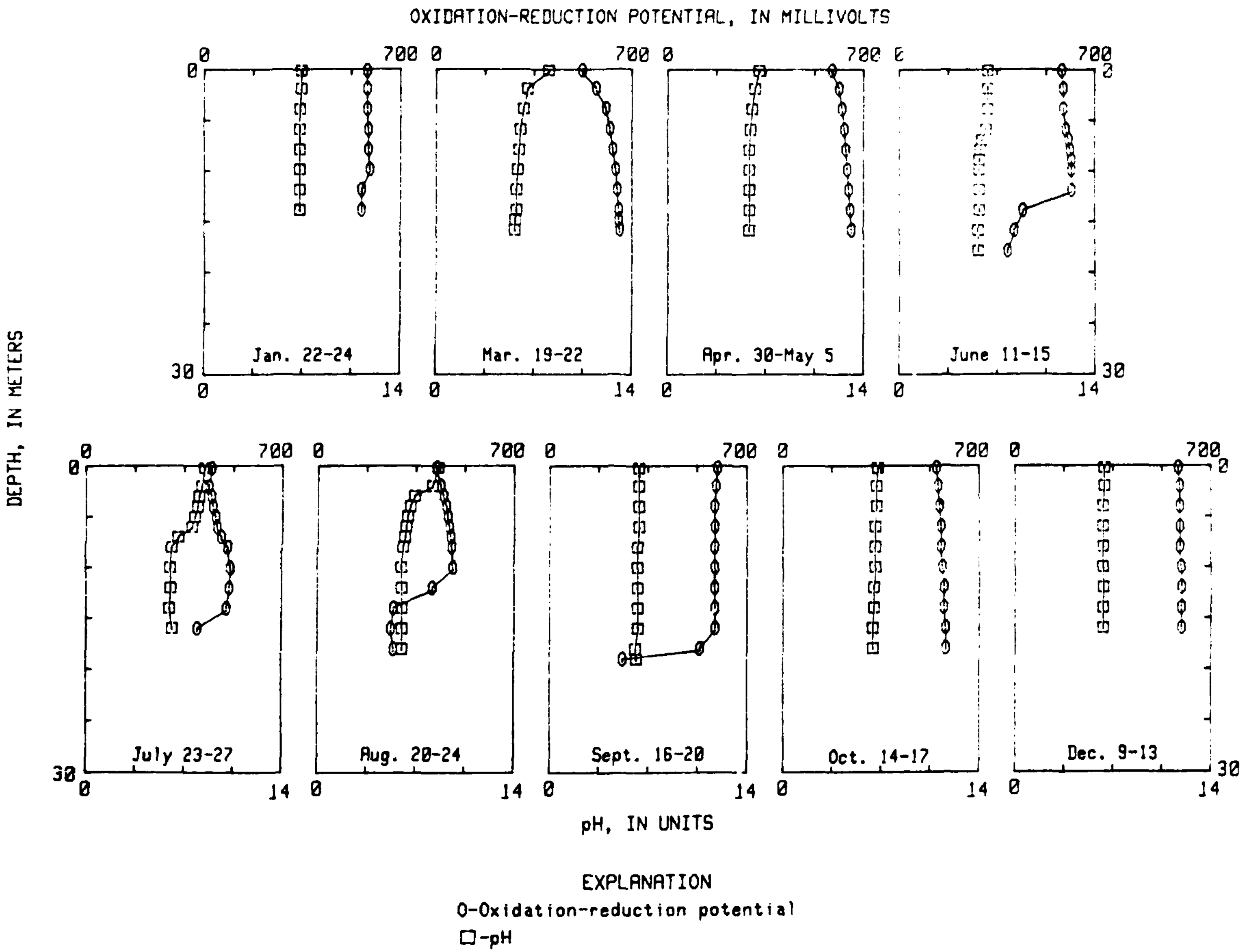
CH-05A (02339190) Chattahoochee River at State Highway 701, near Abbottsford, Ga., 1979



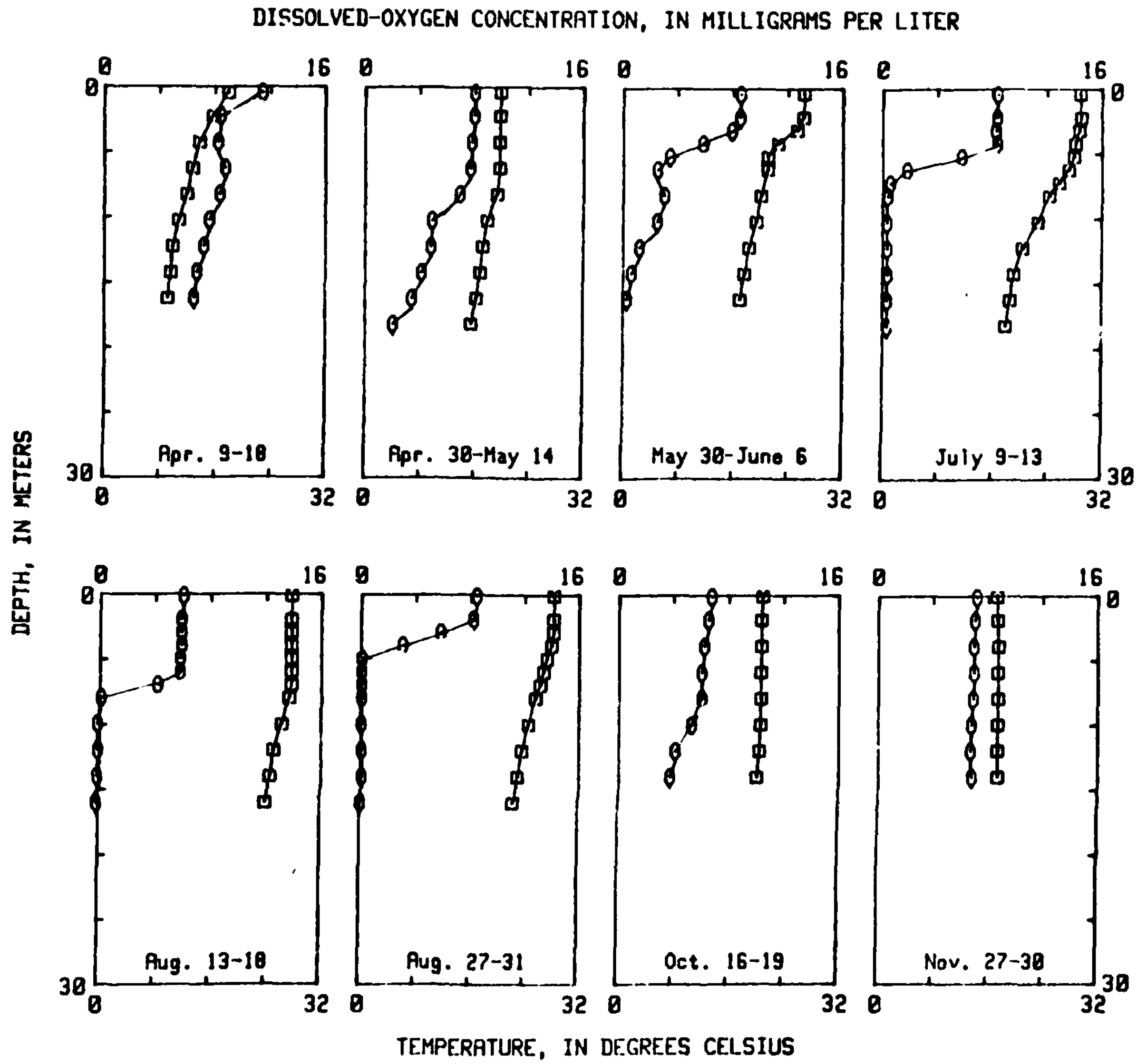
EXPLANATION

O-Oxidation-reduction potential
□-pH

CH-05A (0"339190) Chattahoochee River at State Highway 701, near Abbottsford, Ga., 1978



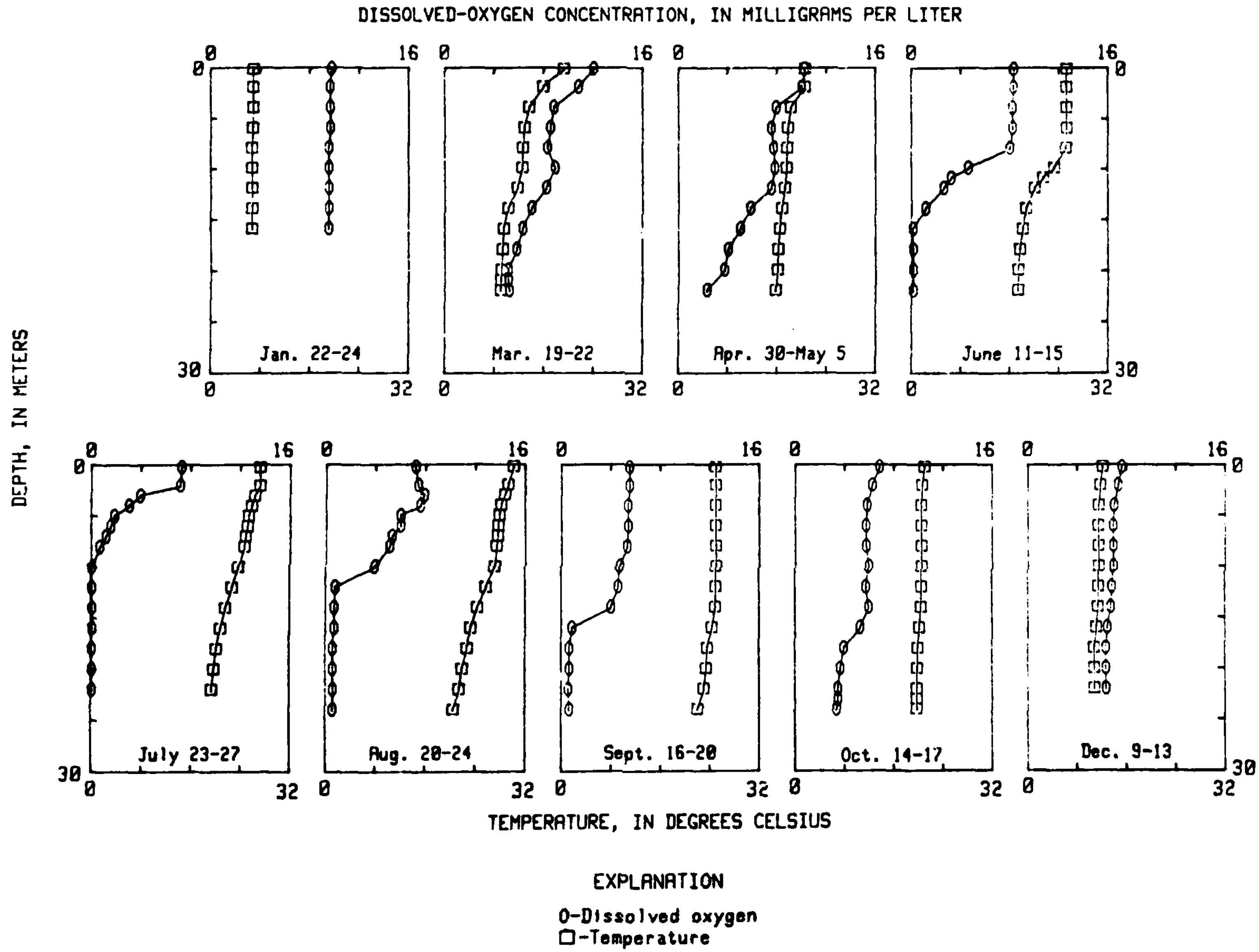
CH-05A (02339190) Chattahoochee River at State Highway 701, near Abbottsford, Ga., 1979



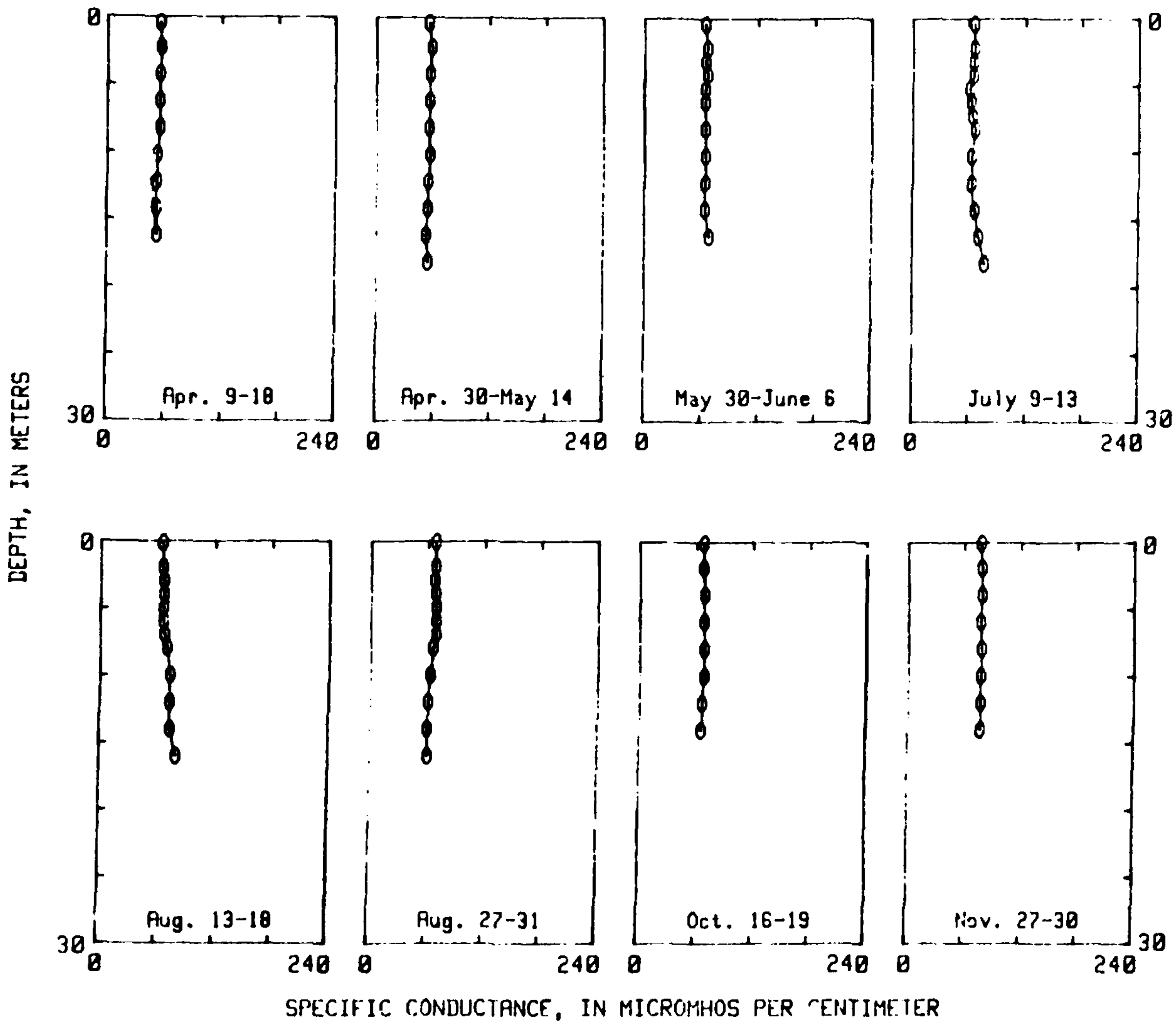
EXPLANATION

□-Temperature O-Dissolved oxygen

CH-03A (02339382) Chattahoochee River above coffer dam, above West Point Dam, 1978



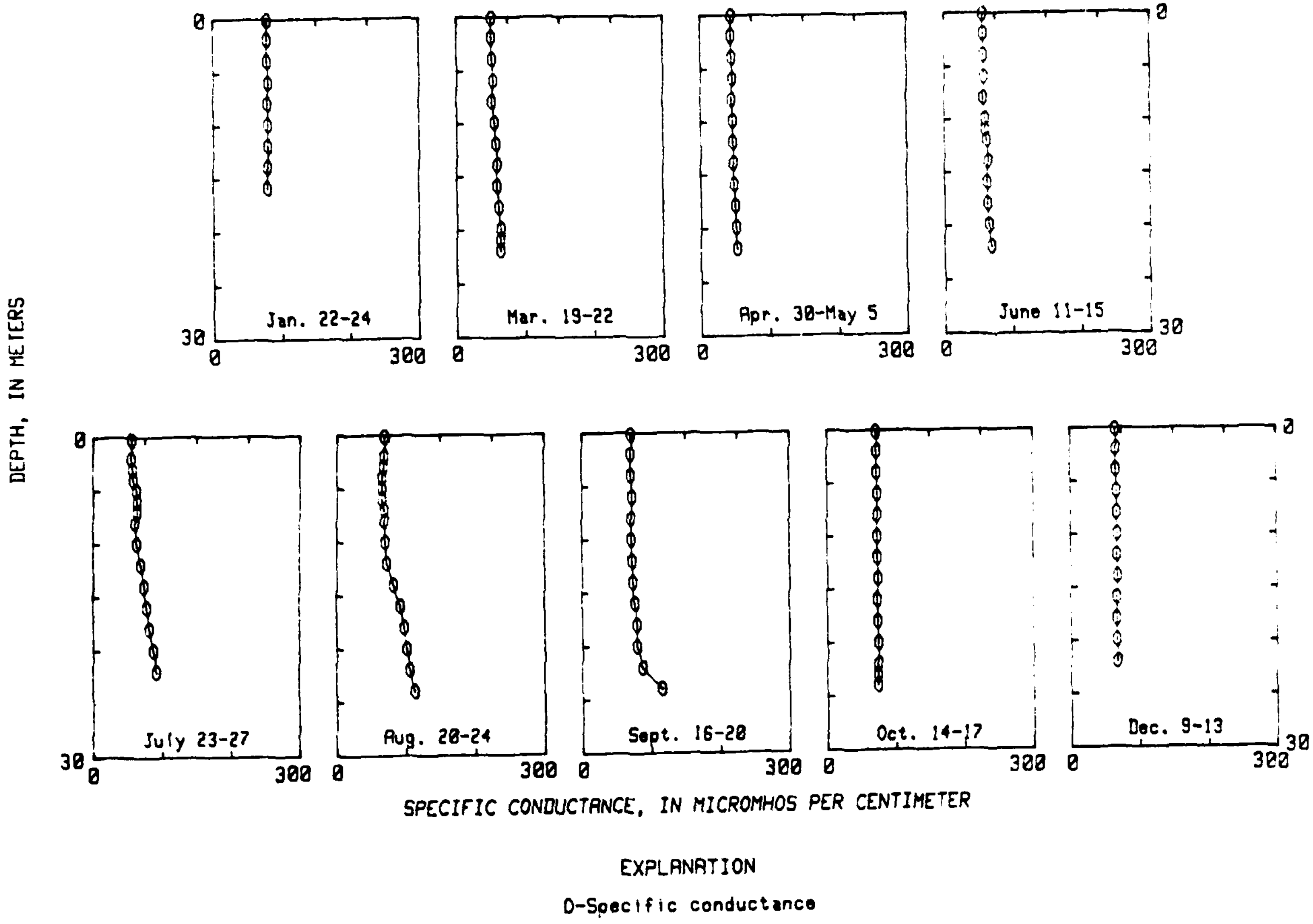
CH-03A (02339382) Chattahoochee River above coffer dam, above West Point Dam, 1979



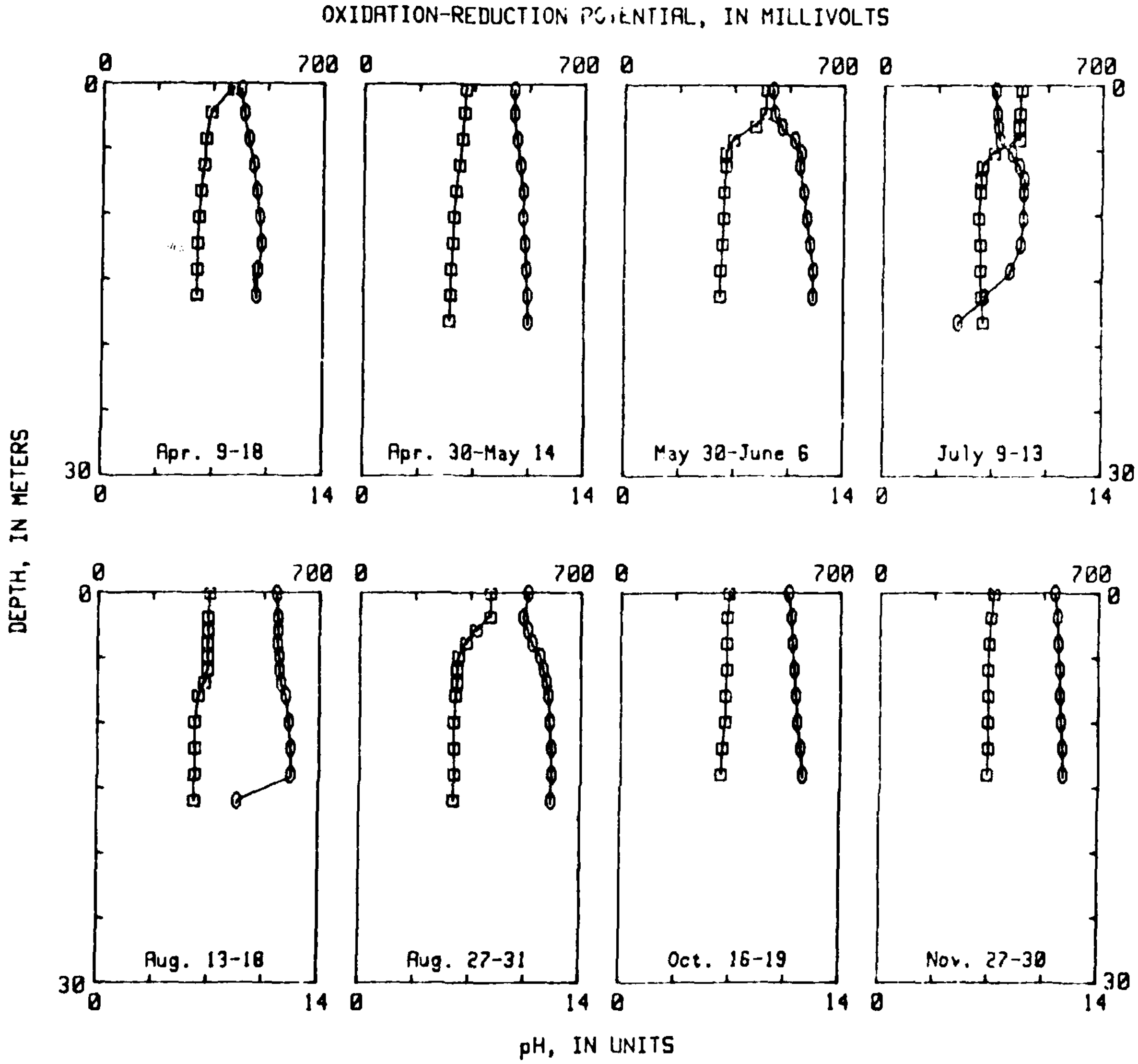
EXPLANATION

O-Specific conductance

CH-03A (02339382) Chattahoochee River above coffer dam, above West Point Dam, 1978



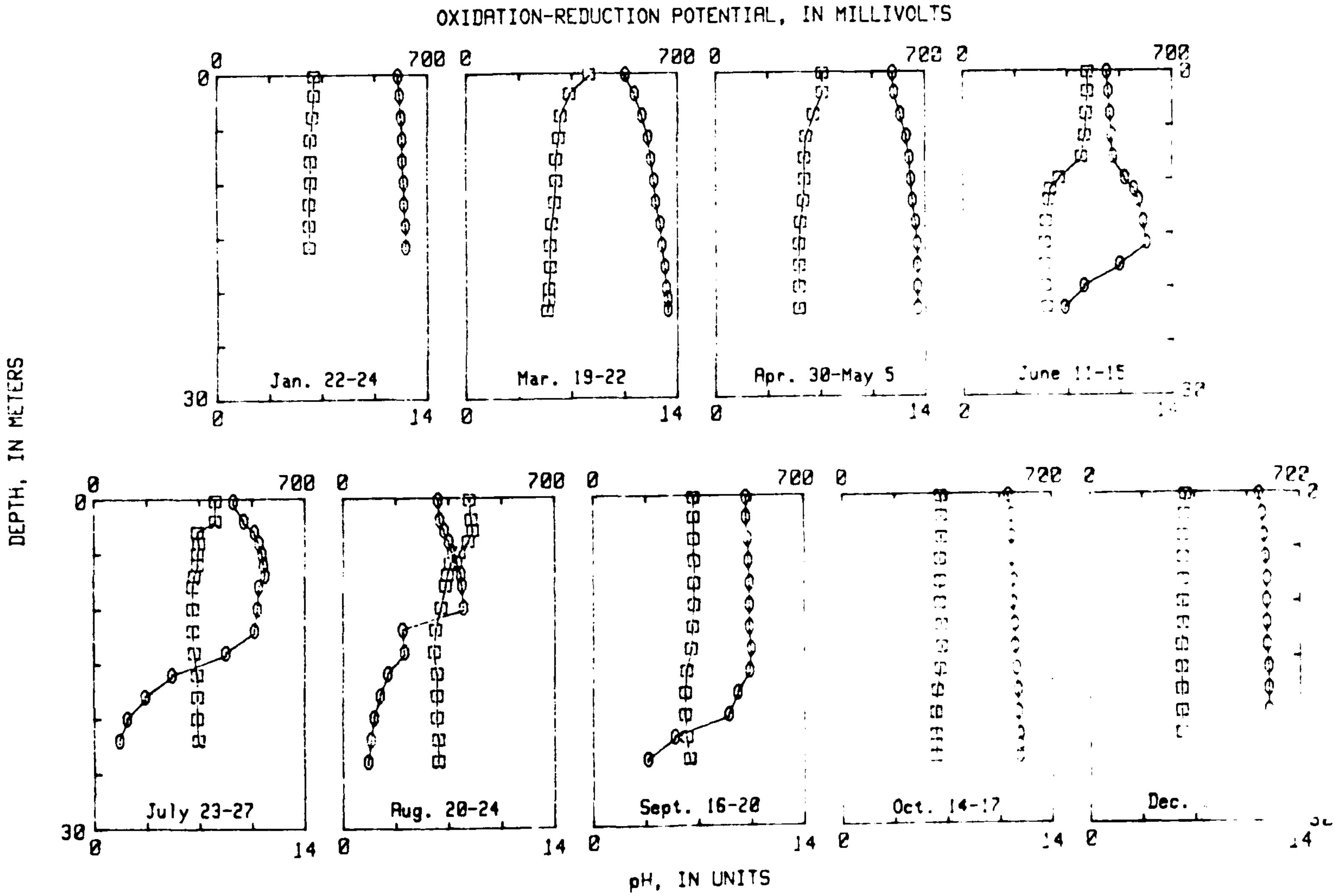
CH-03A (02339382) Chattahoochee River above coffer dam, above West Point Dam, 1979



EXPLANATION

O-Oxidation-reduction potential
□-pH

CH-03A (02339382) Chattahoochee River above coffer dam, above West Point Dam, 1978

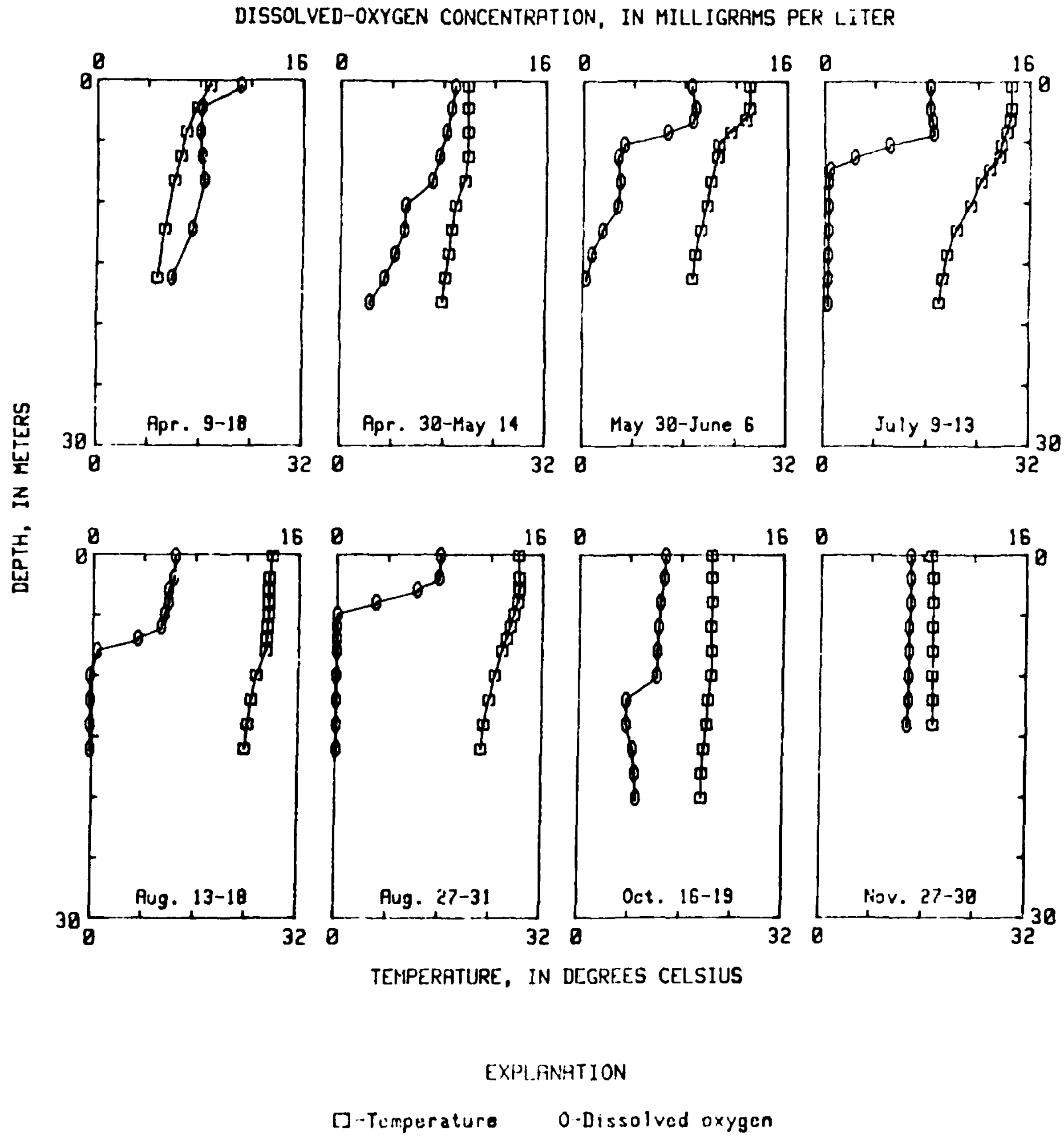


EXPLANATION

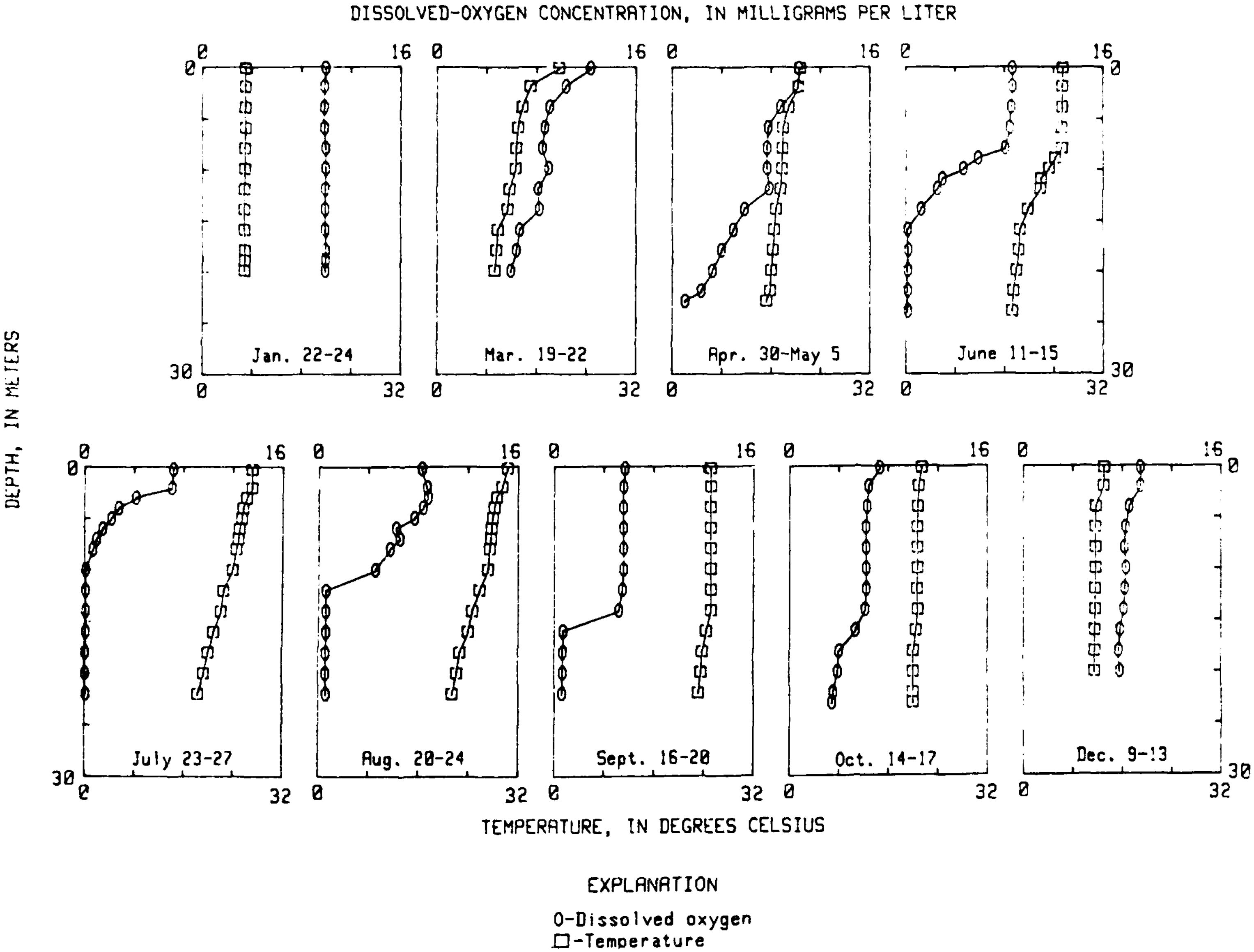
O-Oxidation-reduction potential

□-pH

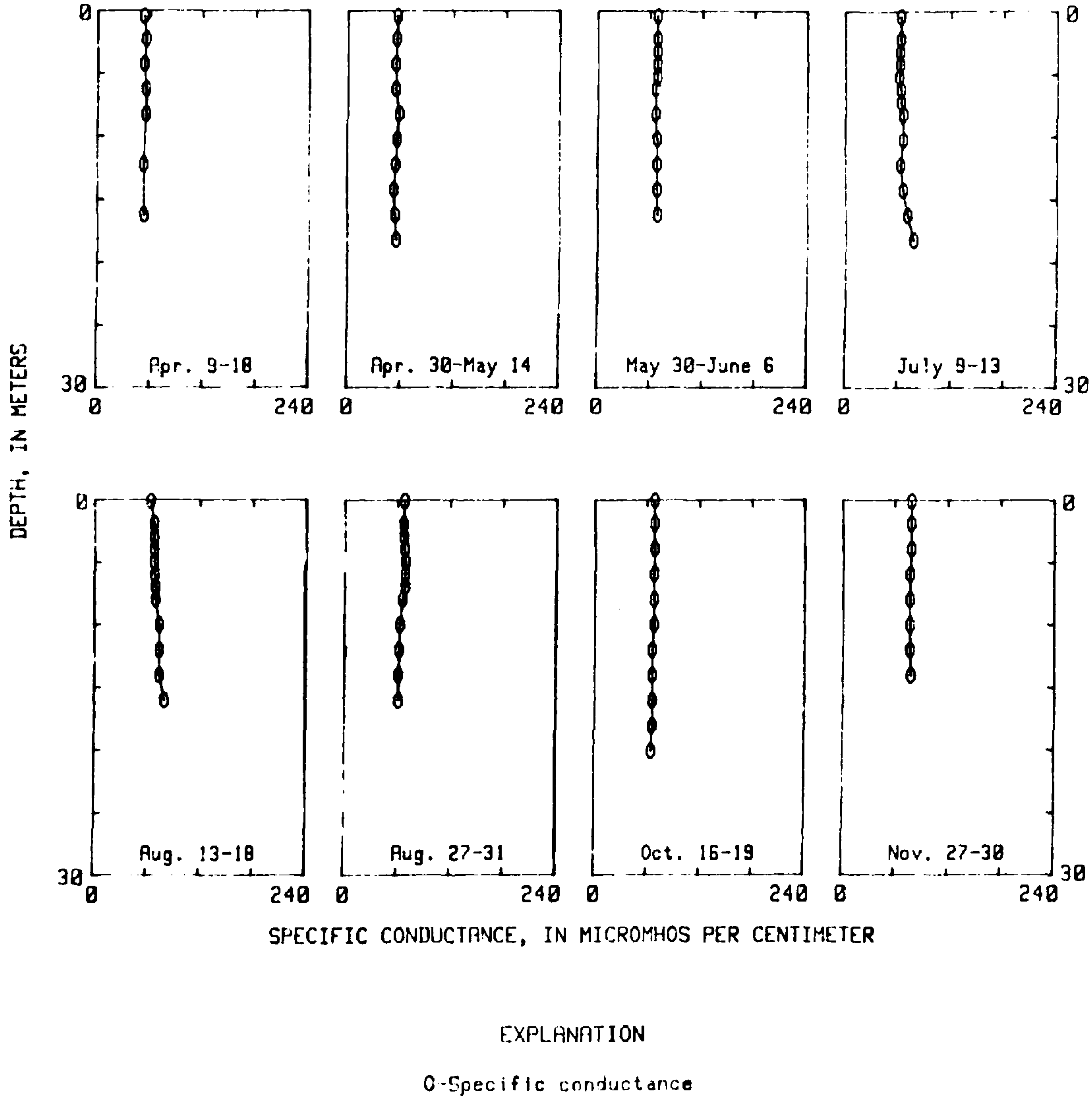
CH-03A (02339382) Chattahoochee River above coffer dam, above West Point Dam, 1979



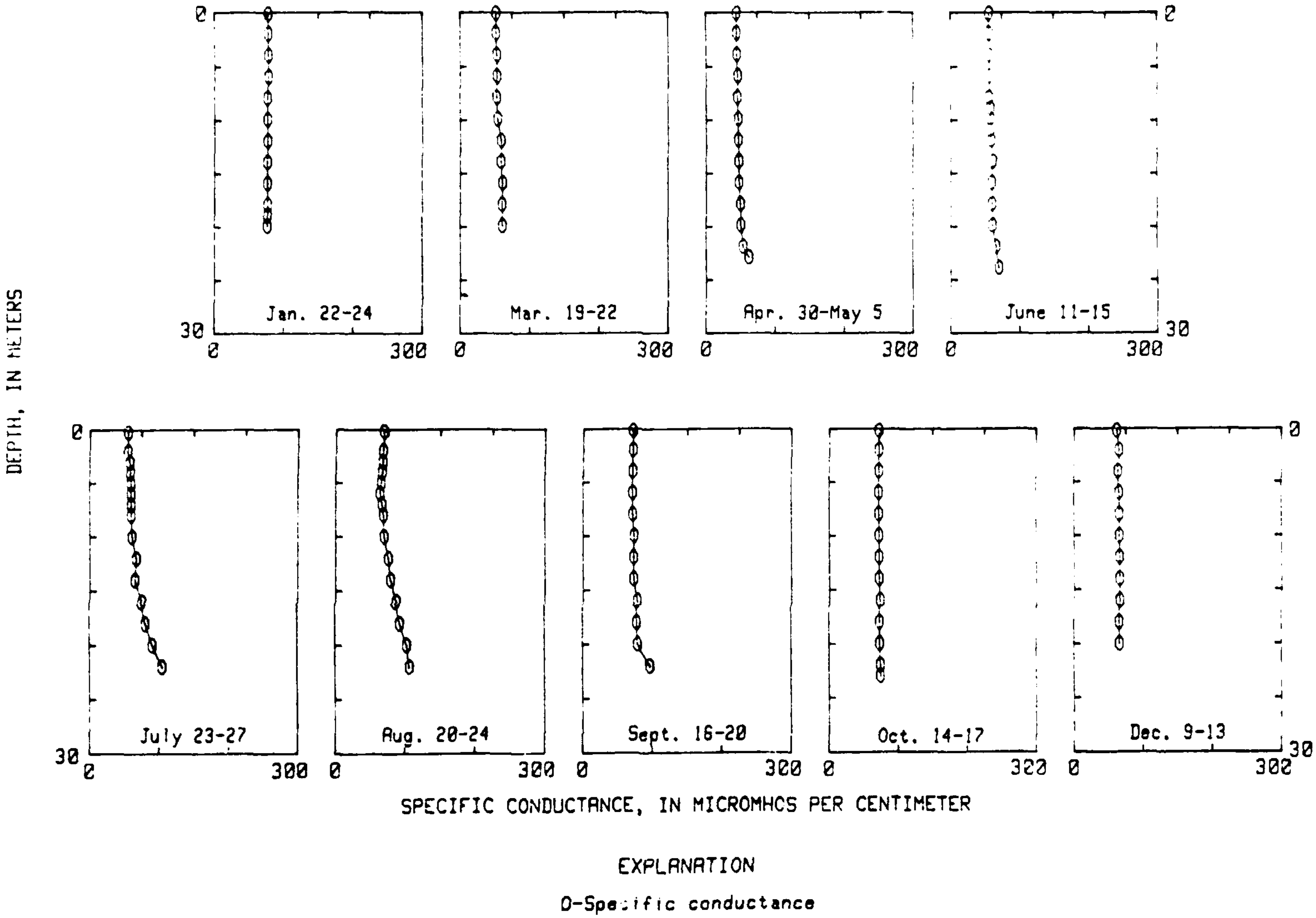
CH-03B (02339387) Chattahoochee River east of coffer dam, above West Point Dam, 1978



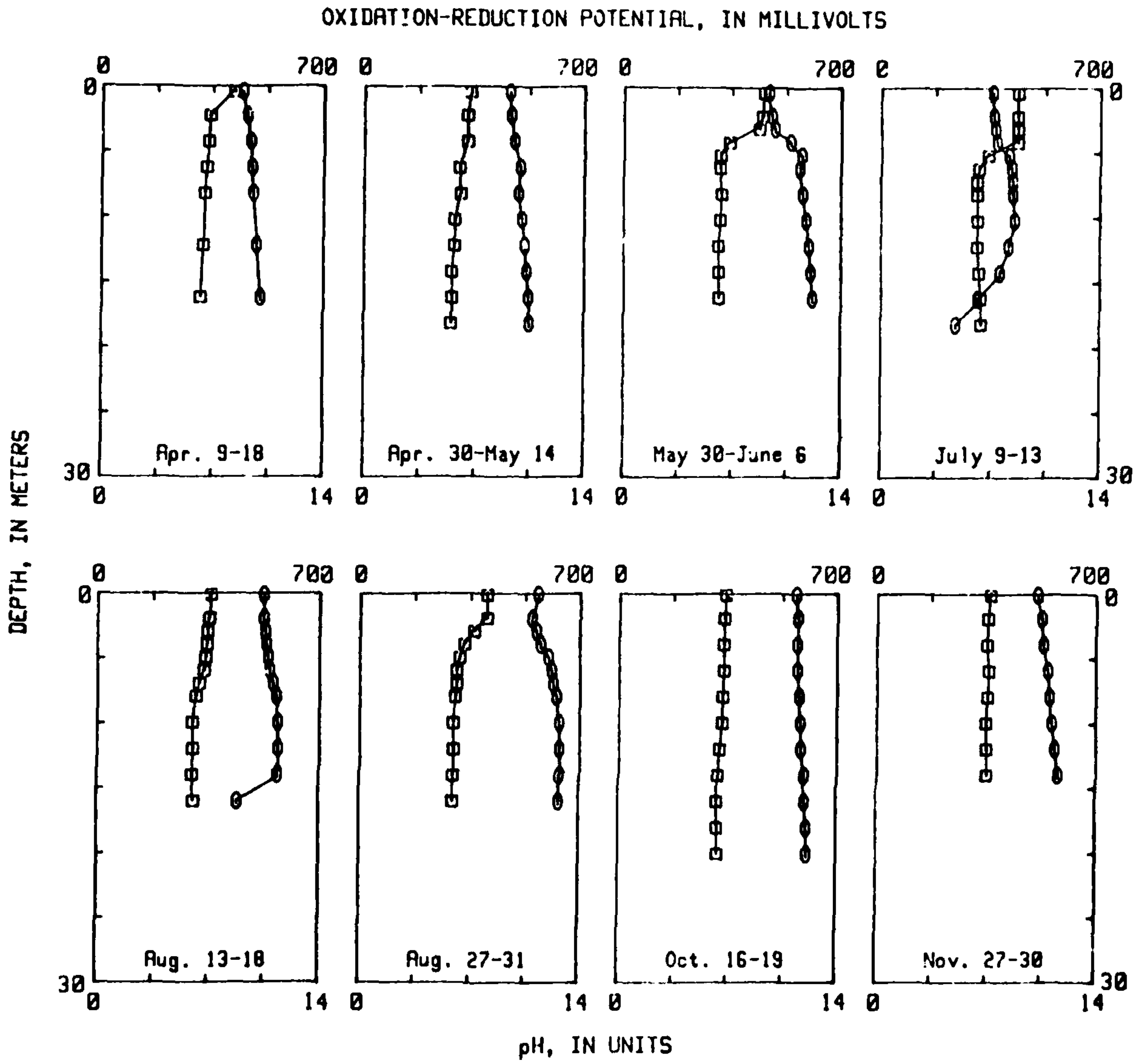
CH-03B (02339387) Chattahoochee River east of coffer dam, above West Point Dam, 1979



CH-03B (02339387) Chattahoochee River east of coffer dam, above West Point Dam, 1978



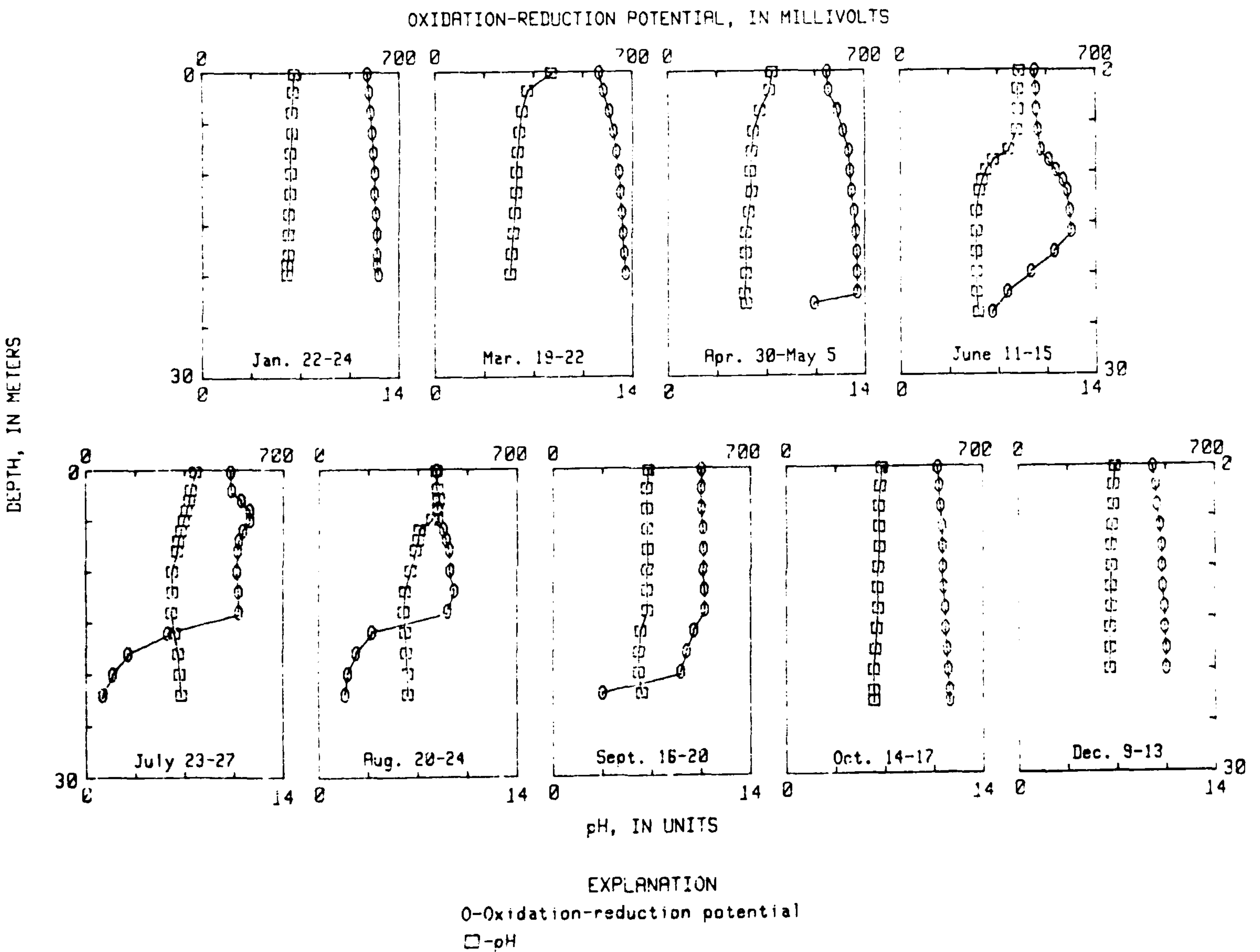
CH-03B (02339387) Chattahoochee River east of coffer dam, above West Point Dam, 1979



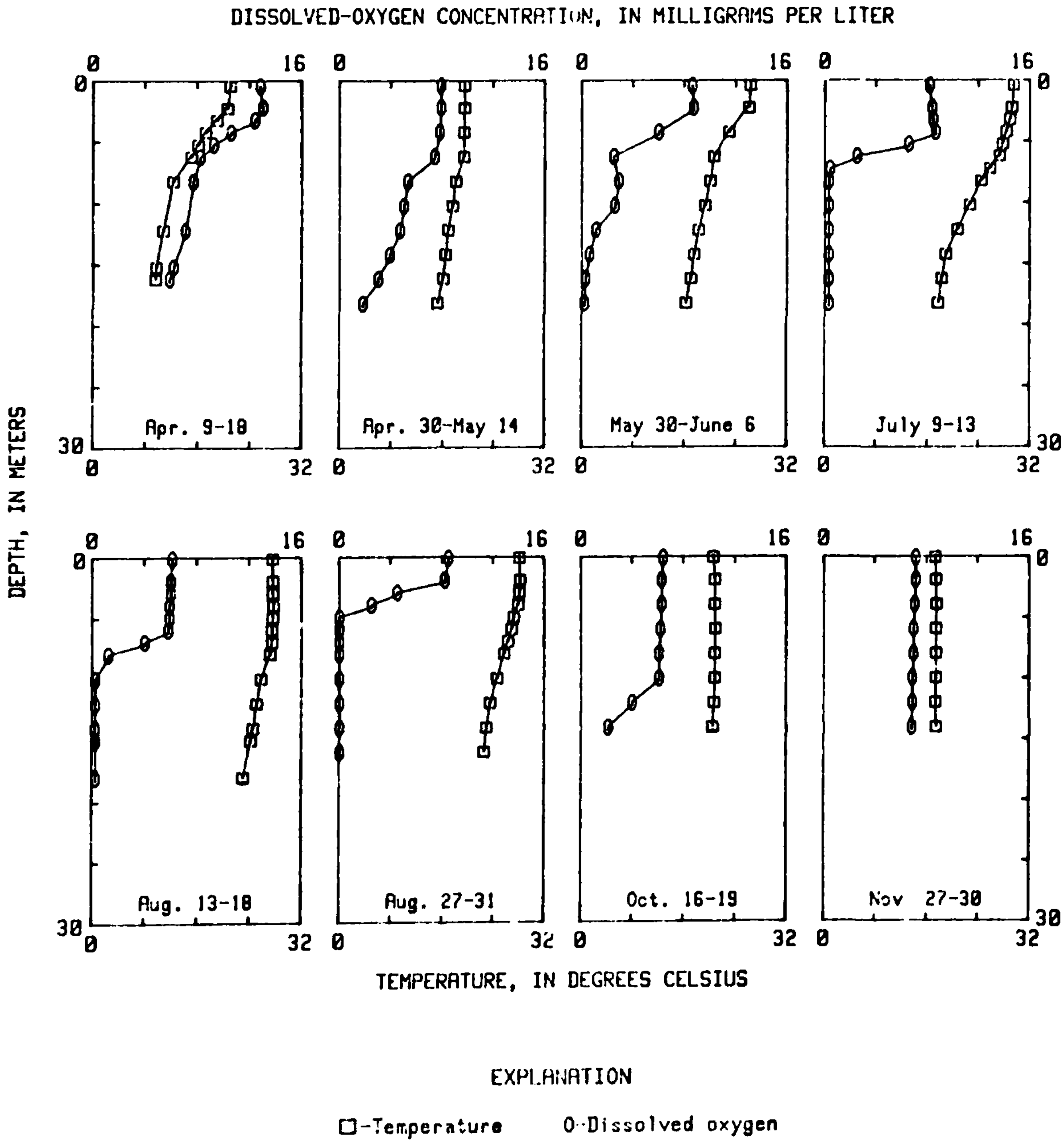
EXPLANATION

O-Oxidation-reduction potential
□-pH

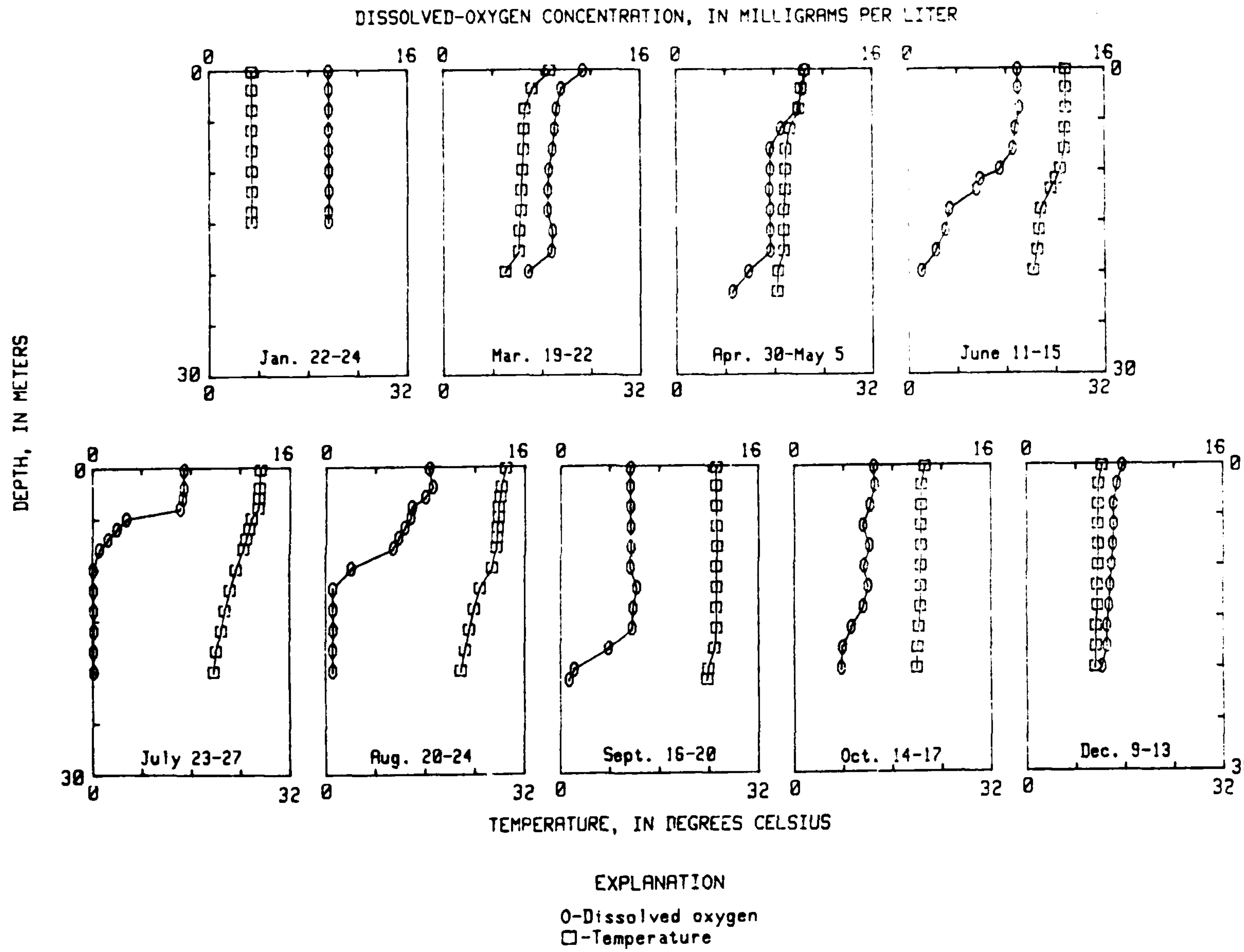
CH-03B (0?339387) Chattahoochee River east of coffer dam, above West Point Dam, 1978



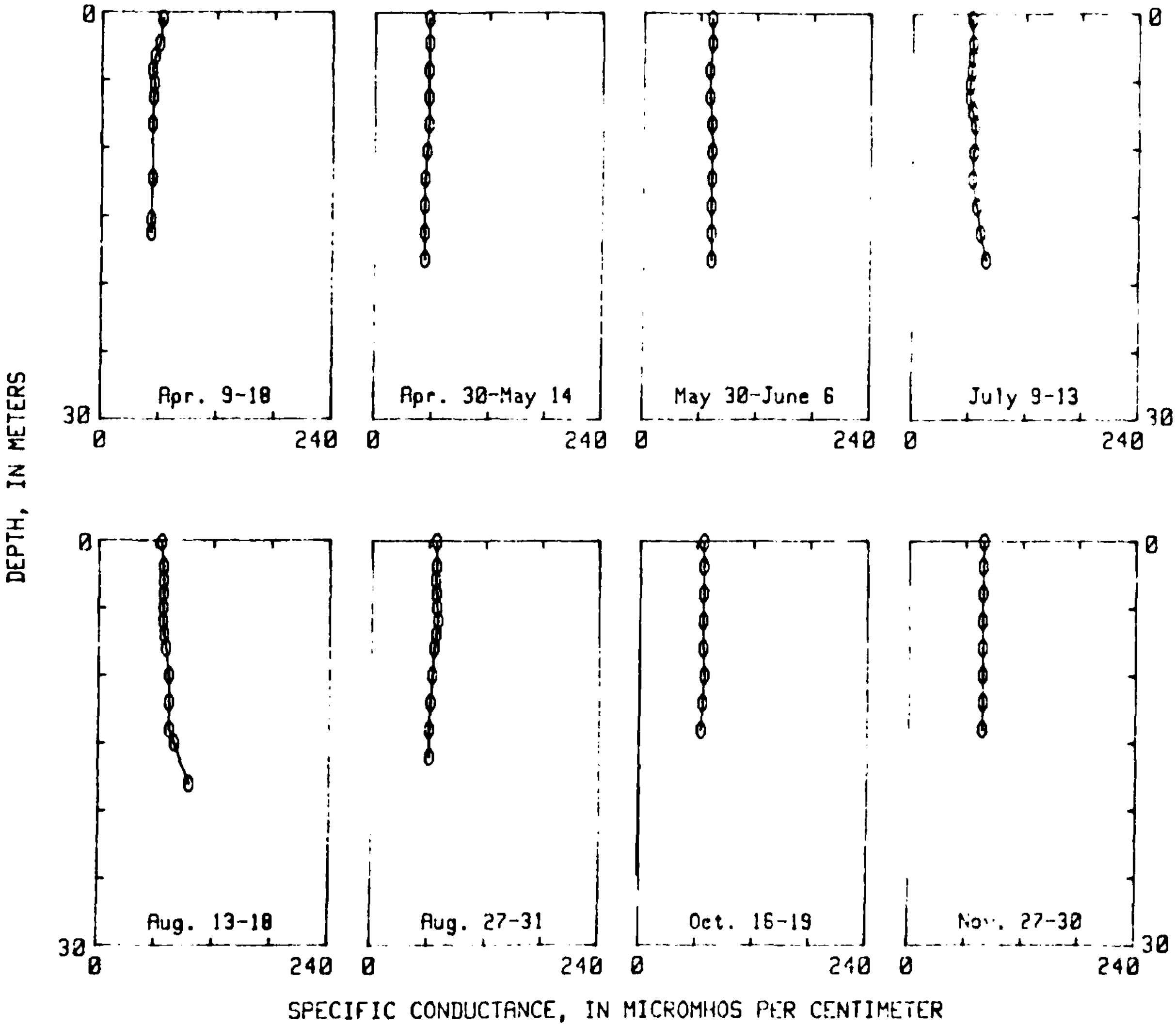
CH-03B (02339387) Chattahoochee River east of coffer dam, above West Point Dam, 1979



CH-03C (02339388) Chattahoochee River below coffer dam, above West Point Dam, 1978



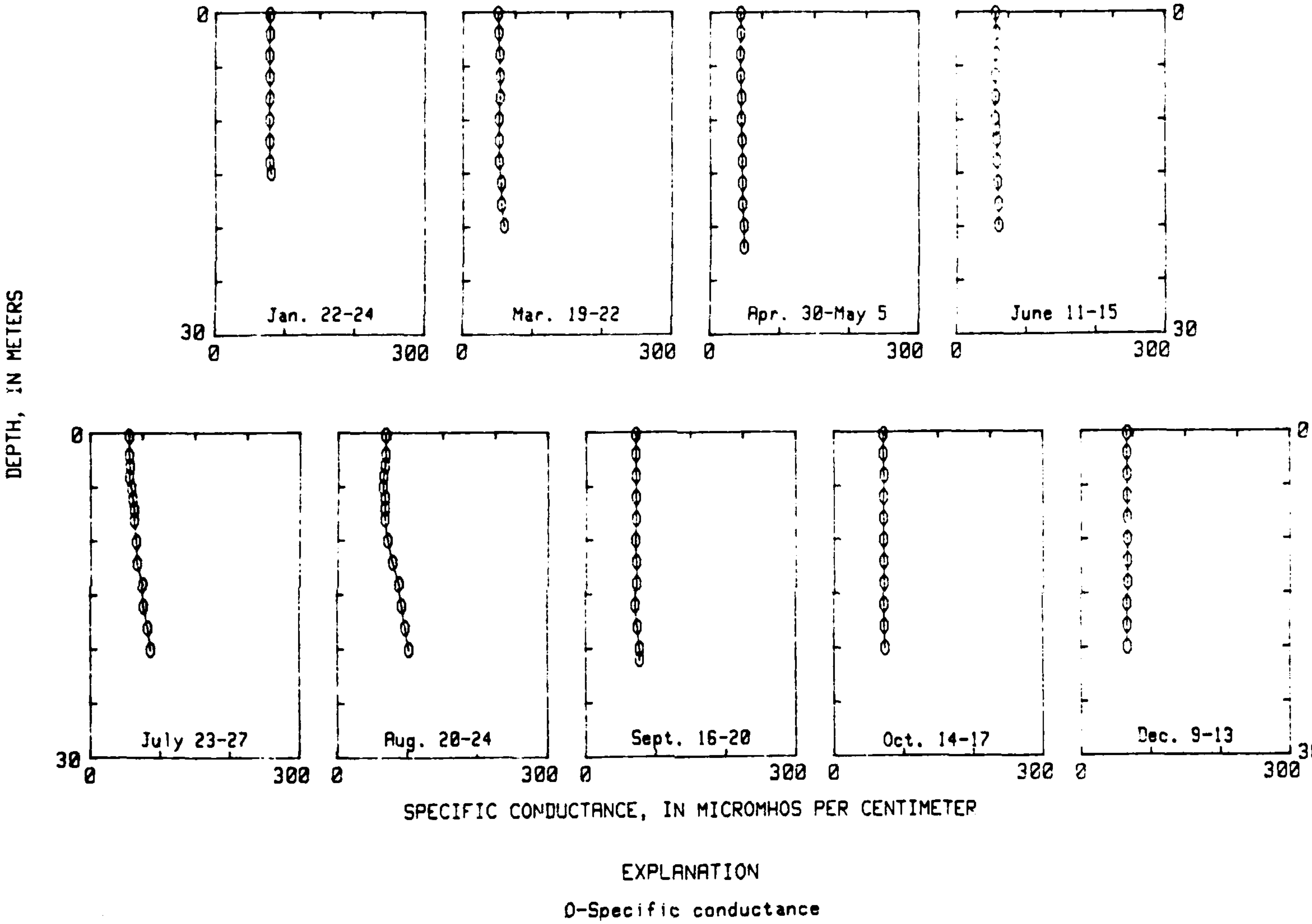
CH-03C (02339388) Chattahoochee River below coffer dam, above West Point Dam, 1979



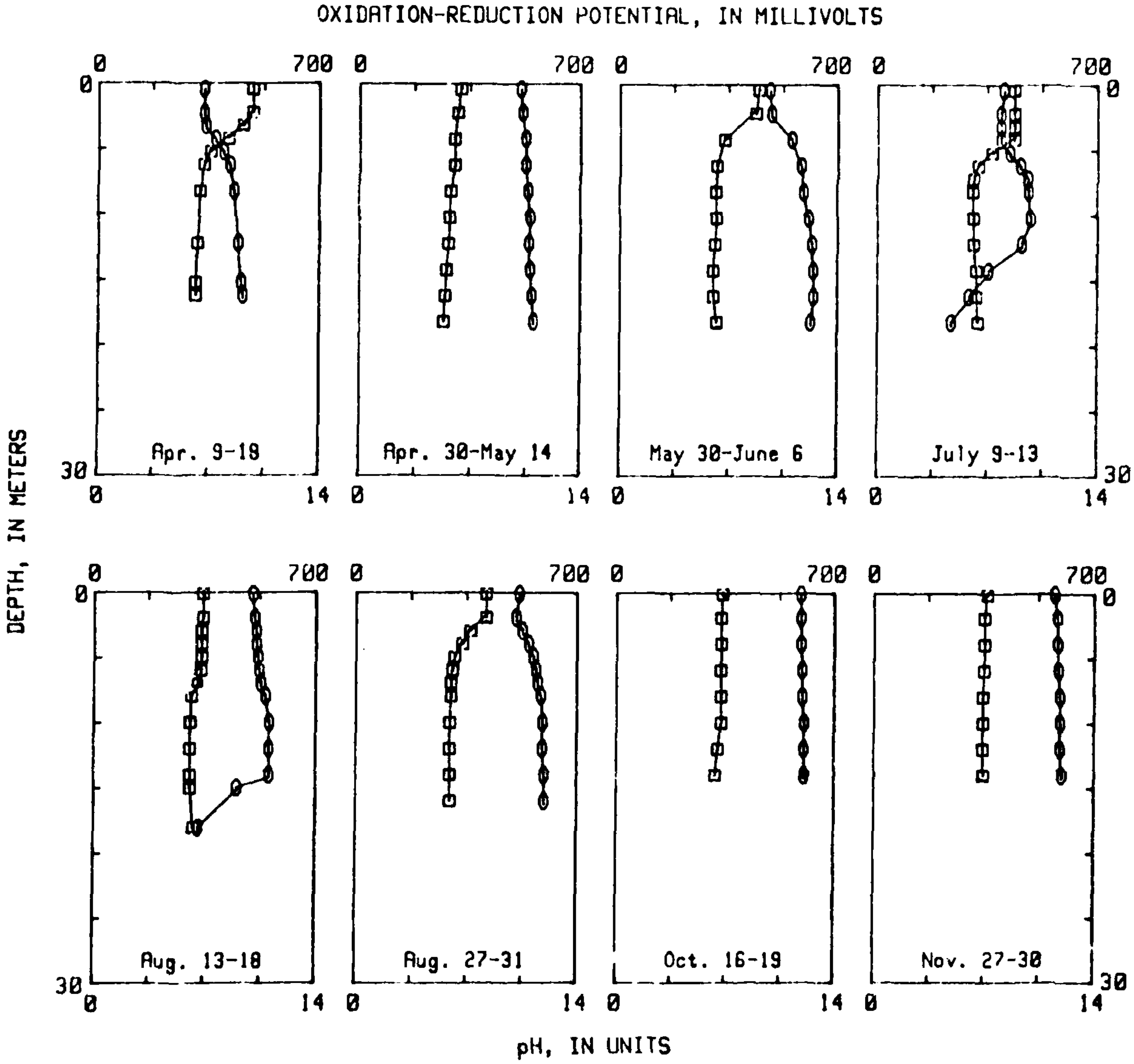
EXPLANATION

O-Specific conductance

CH-03C (02339388) Chattahoochee River below coffer dam, above West Point Dam, 1978



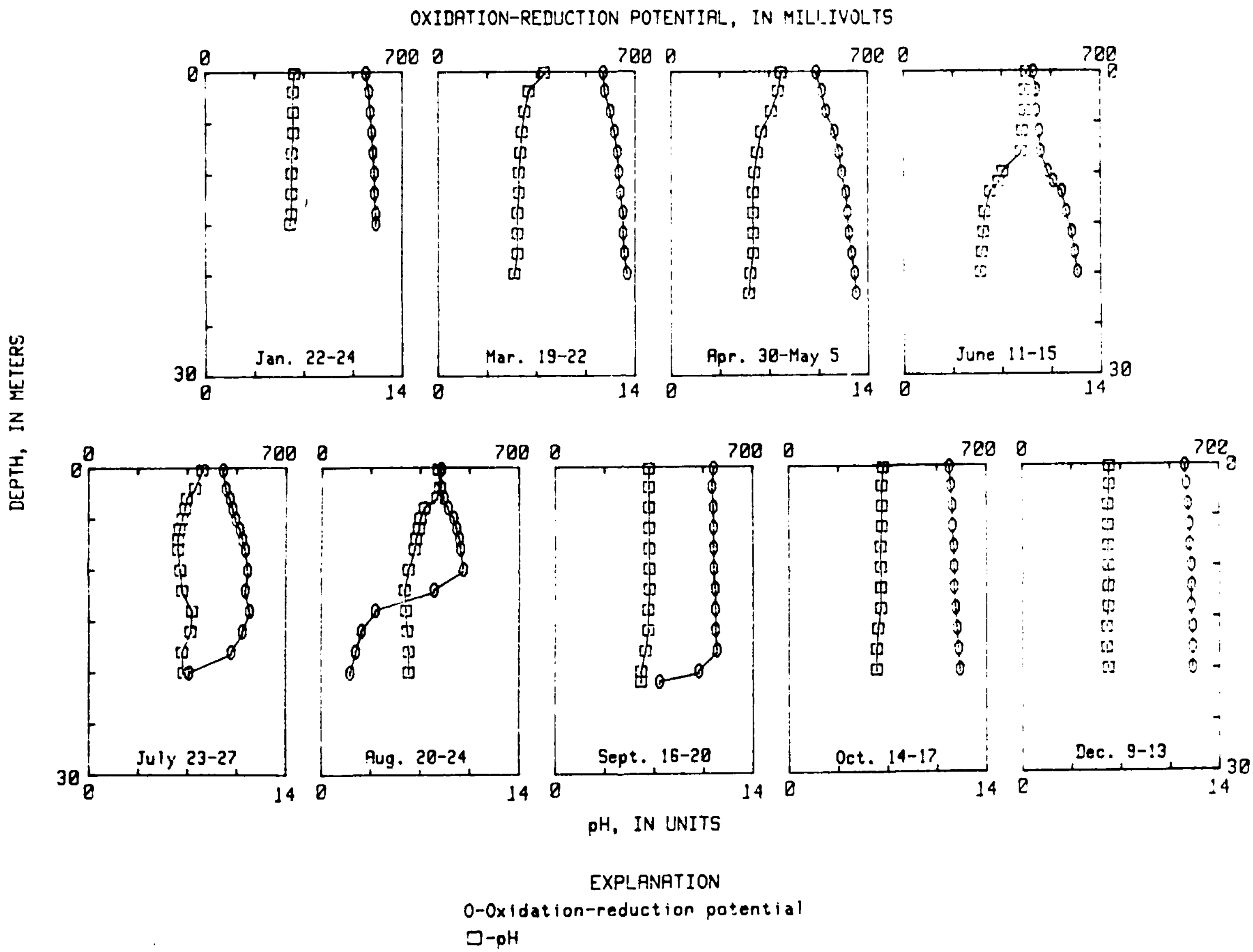
CH-03C (02339388) Chattahoochee River below coffer dam, above West Point Dam, 1979



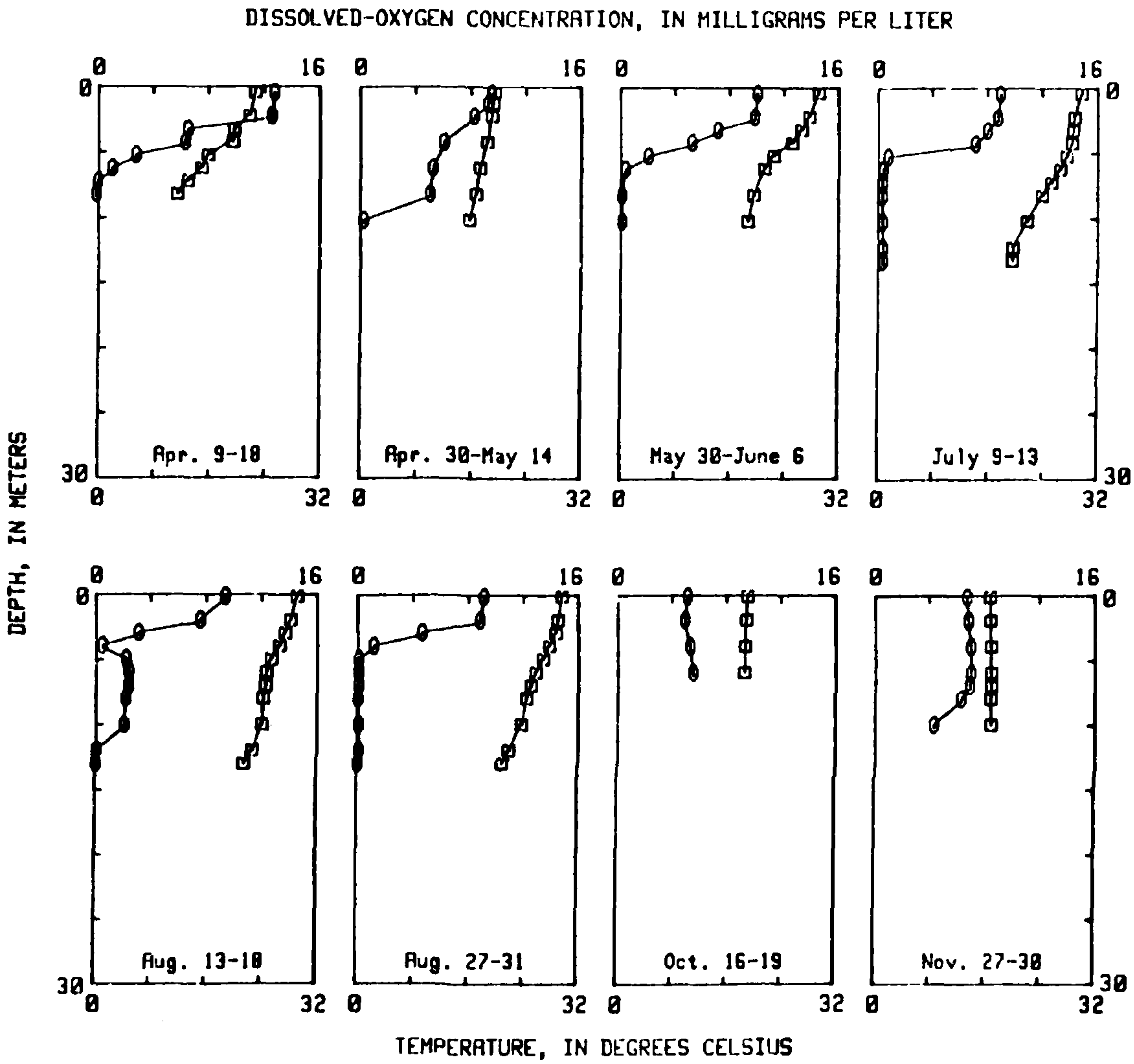
EXPLANATION

O--Oxidation-reduction potential
□-pH

CH 03C 02339300) Chattahoochee River below coffer dam, above West Point Dam, 1978



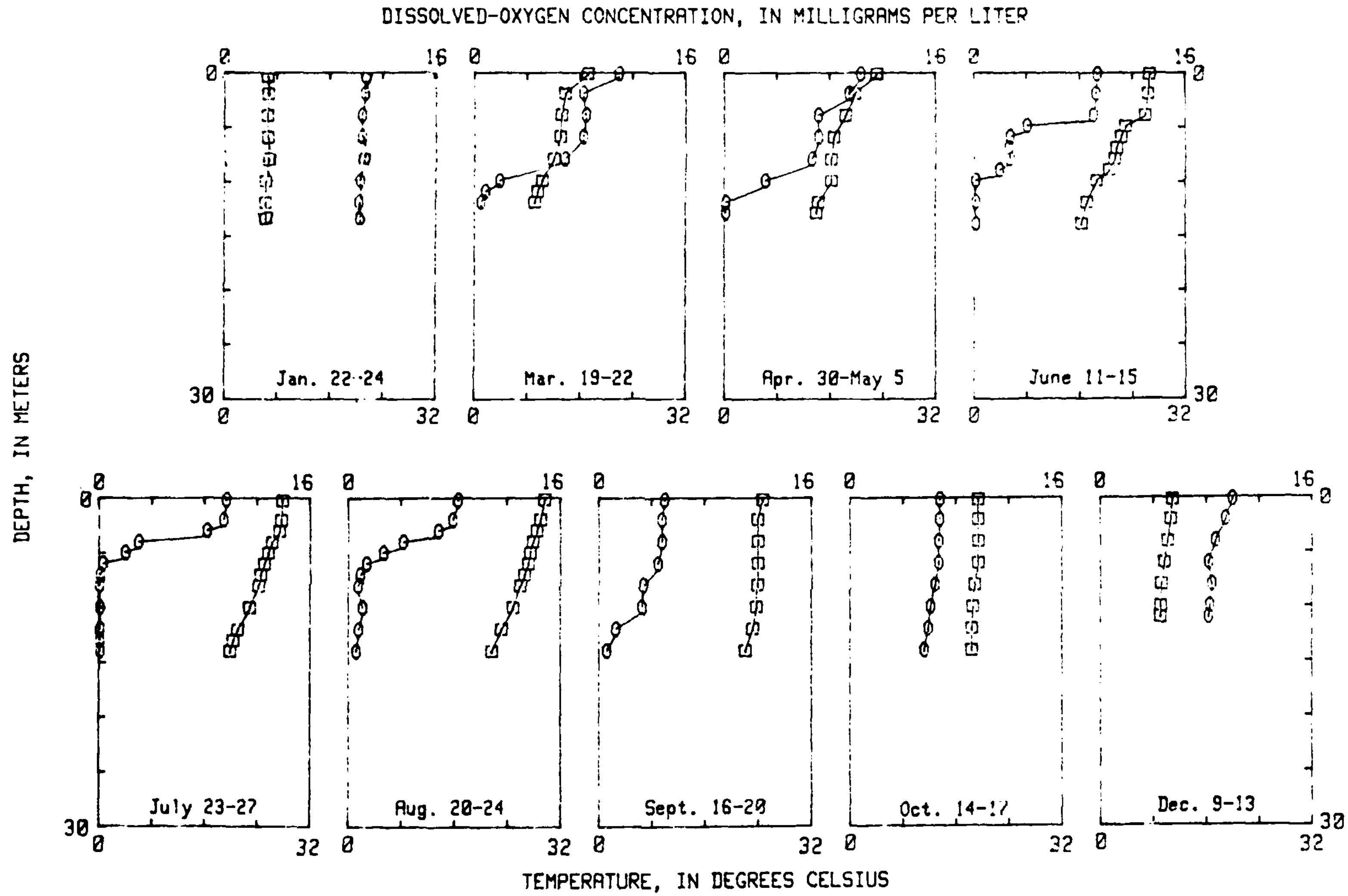
CH-03C (02339388) Chattahoochee River below coffer dam, above West Point Dam, 1979



EXPLANATION

□-Temperature O-Dissolved oxygen

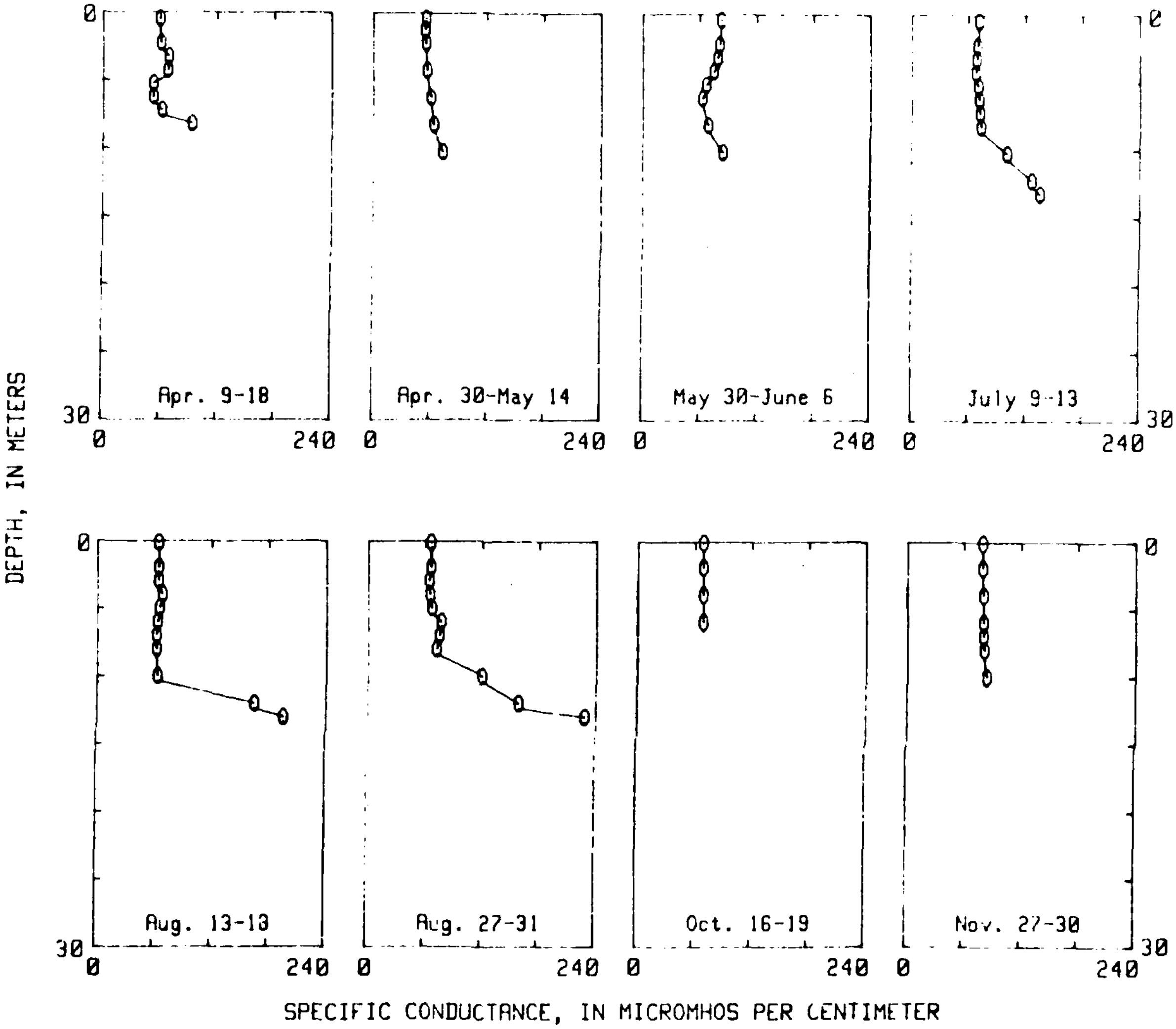
CH-08 (02339020) Chattahoochee River at Cameron Mill Road, near LaGrange, Ga., 1978



EXPLANATION

O-Dissolved oxygen
□-Temperature

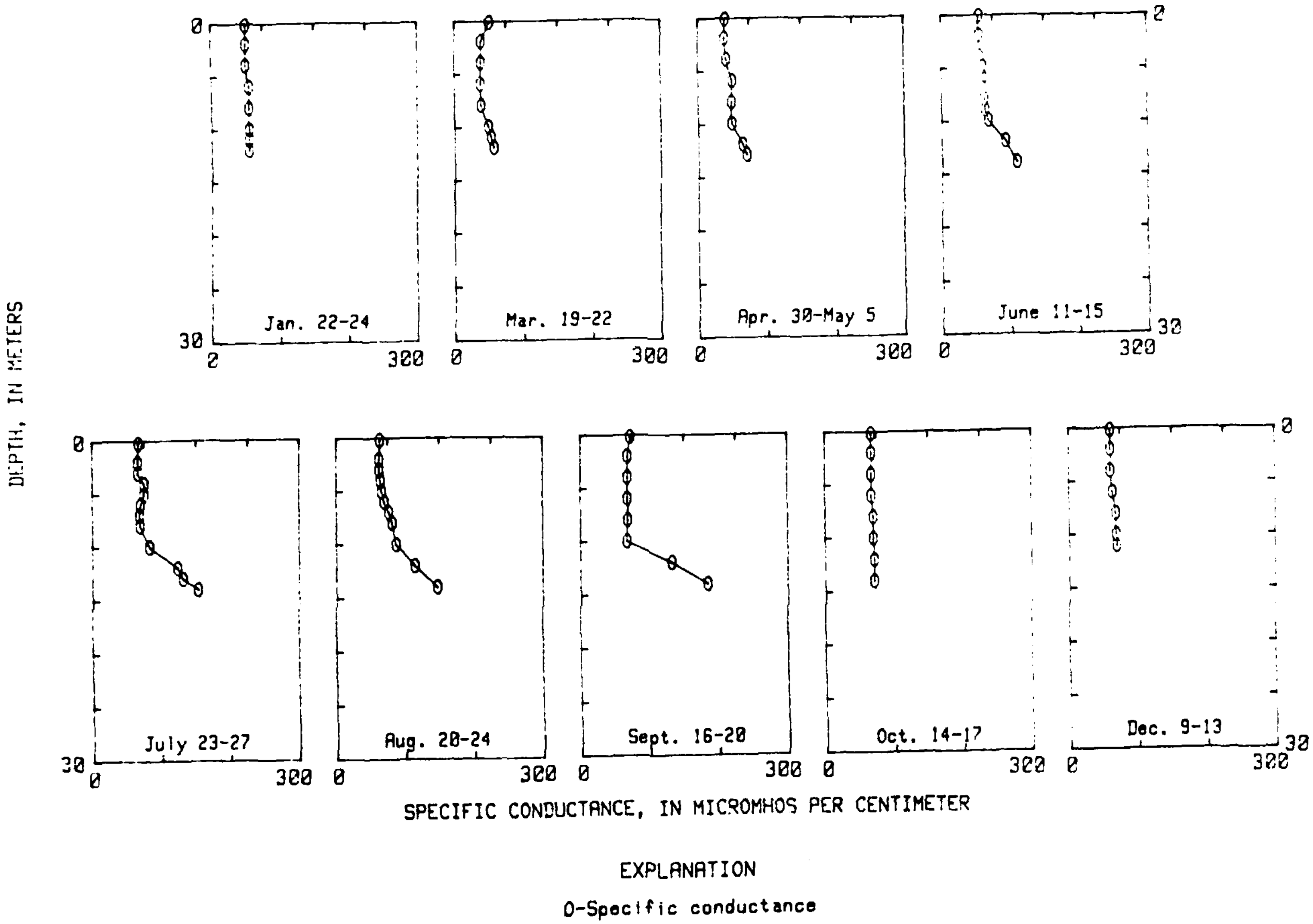
CH-08 (02339020) Chattahoochee River at Cameron Mill Road, near LaGrange, Ga., 1979



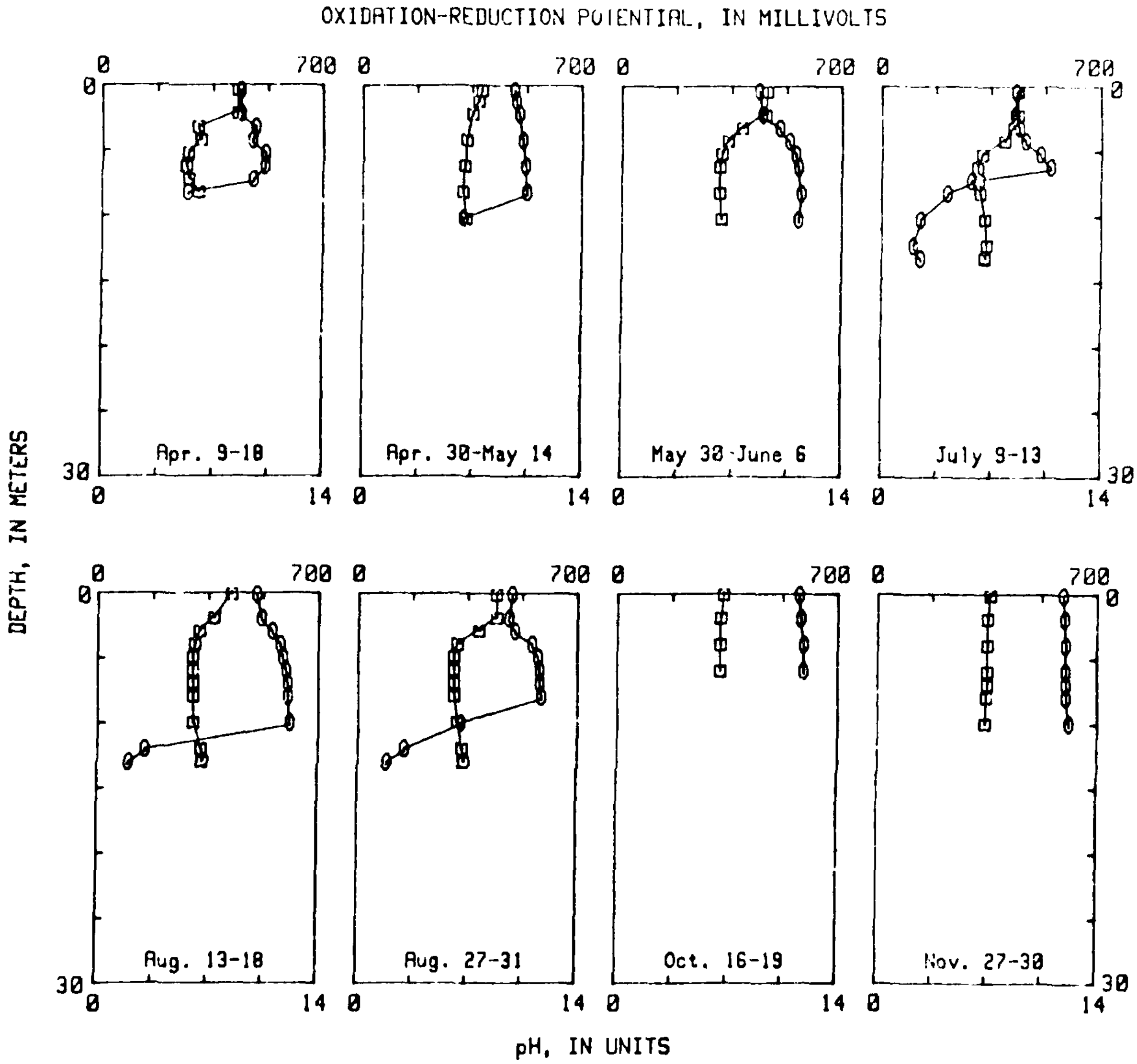
EXPLANATION

O Specific conductance

CH 08 (02339020) Chattahoochee River at Cameron Mill Road, near LaGrange, Ga., 1978



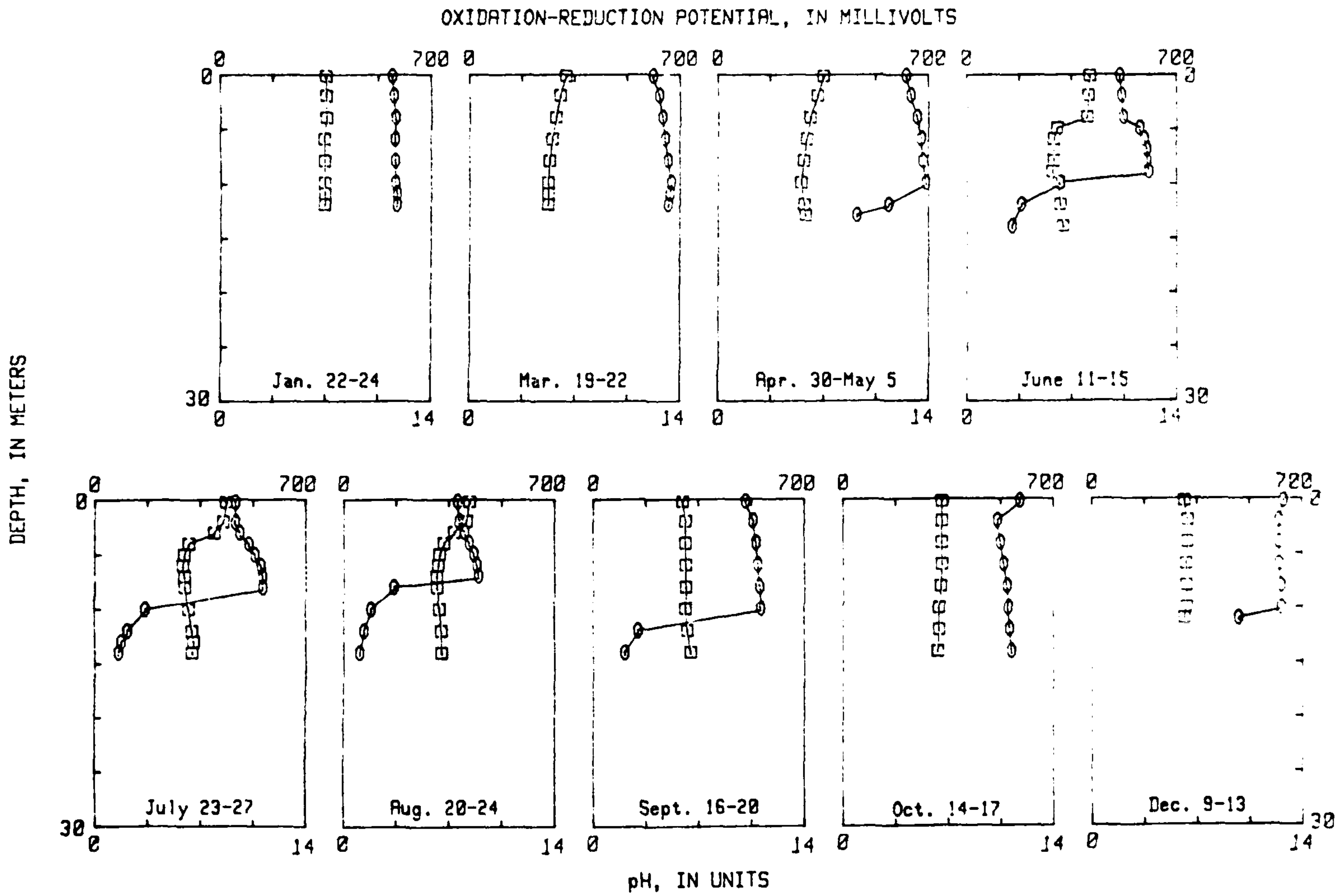
CH-08 (02339020) Chattahoochee River at Cameron Mill Road, near LaGrange, Ga., 1979



EXPLANATION

O Oxidation-reduction potential
□ pH

CH 08 (02339020) Chattahoochee River at Cameron Mill Road, near LaGrange, Ga., 1978

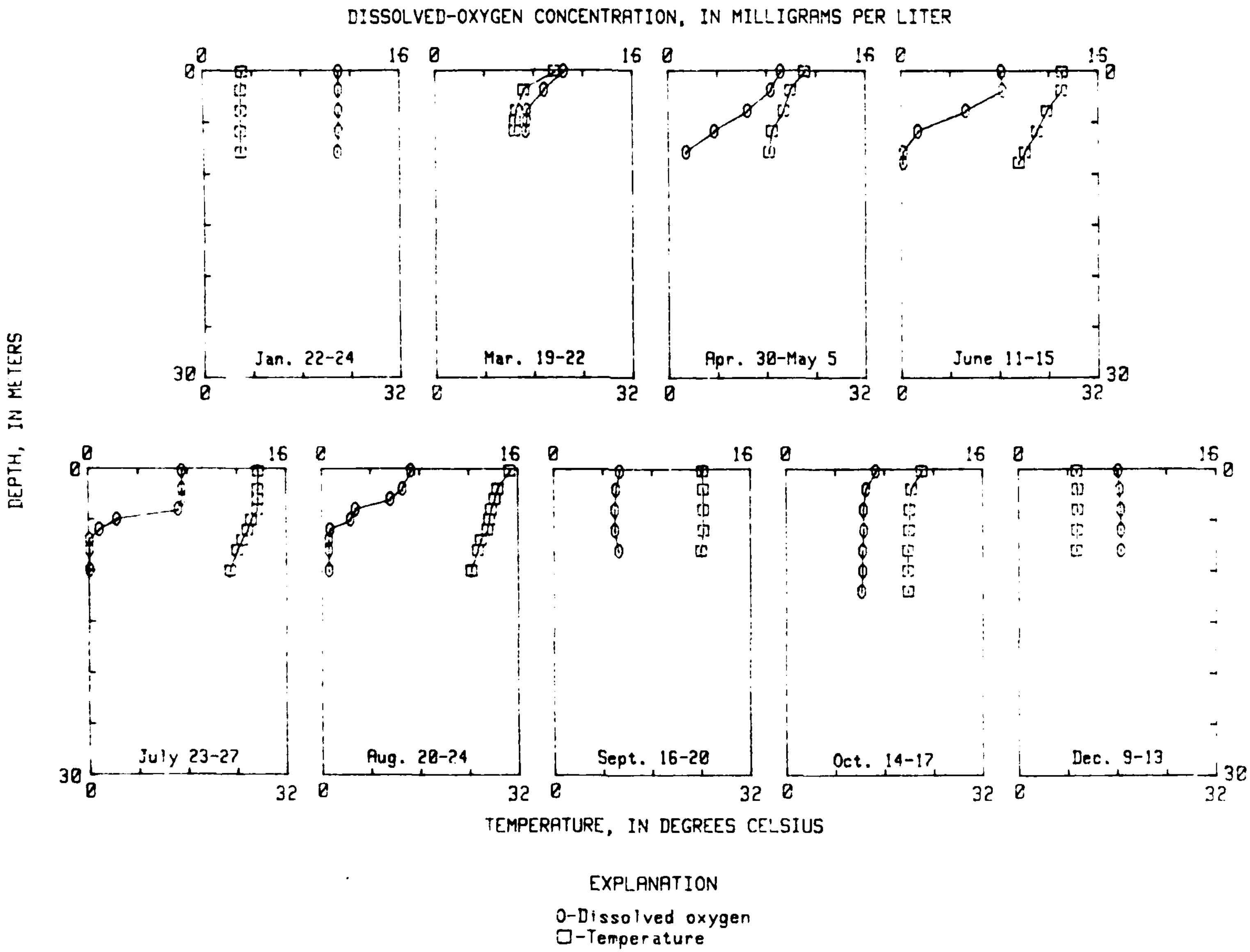


EXPLANATION

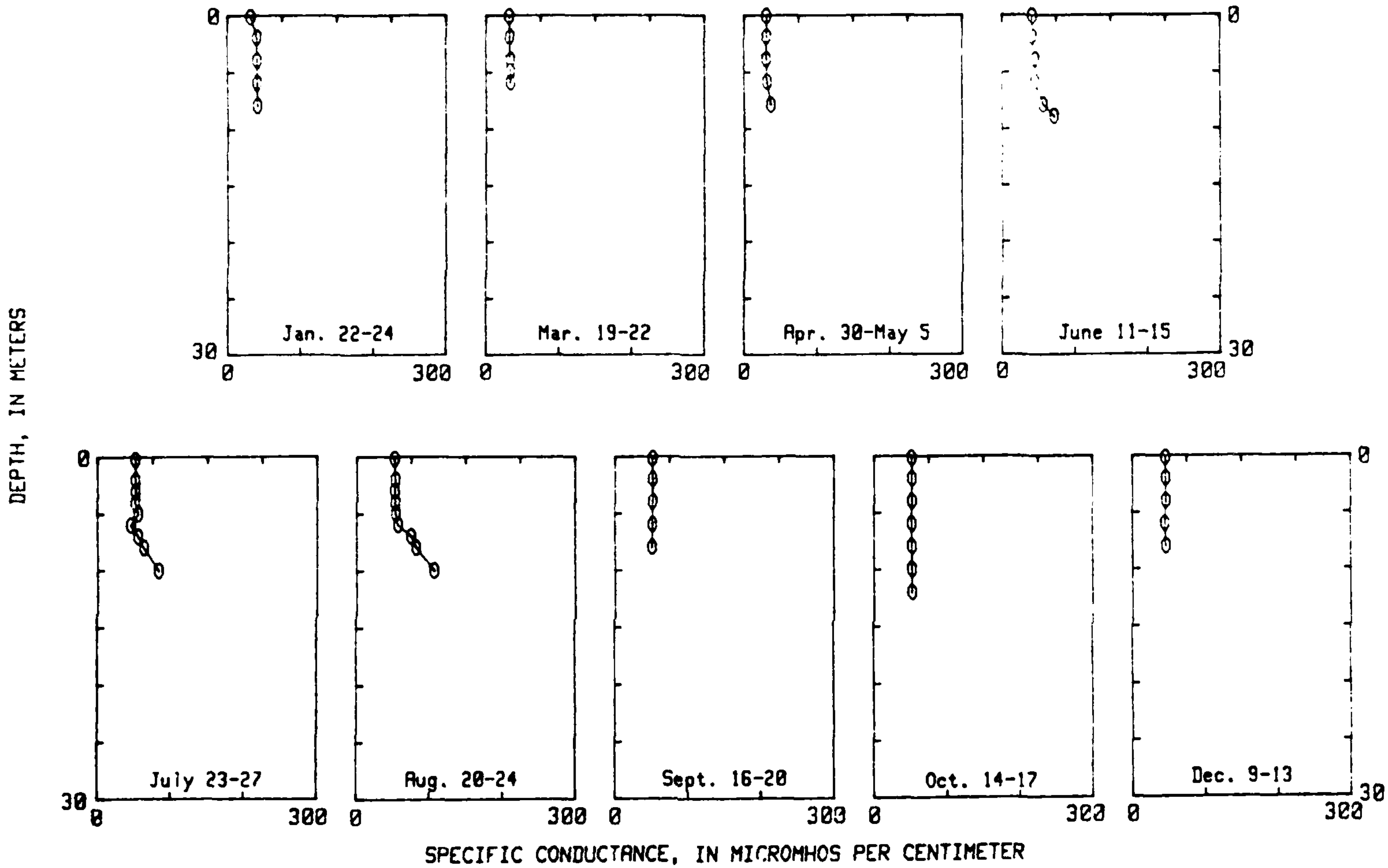
O-Oxidation-reduction potential

□-pH

CH-08 (02339020) Chattahoochee River at Cameron Mill Road, near LaGrange, Ga., 1979



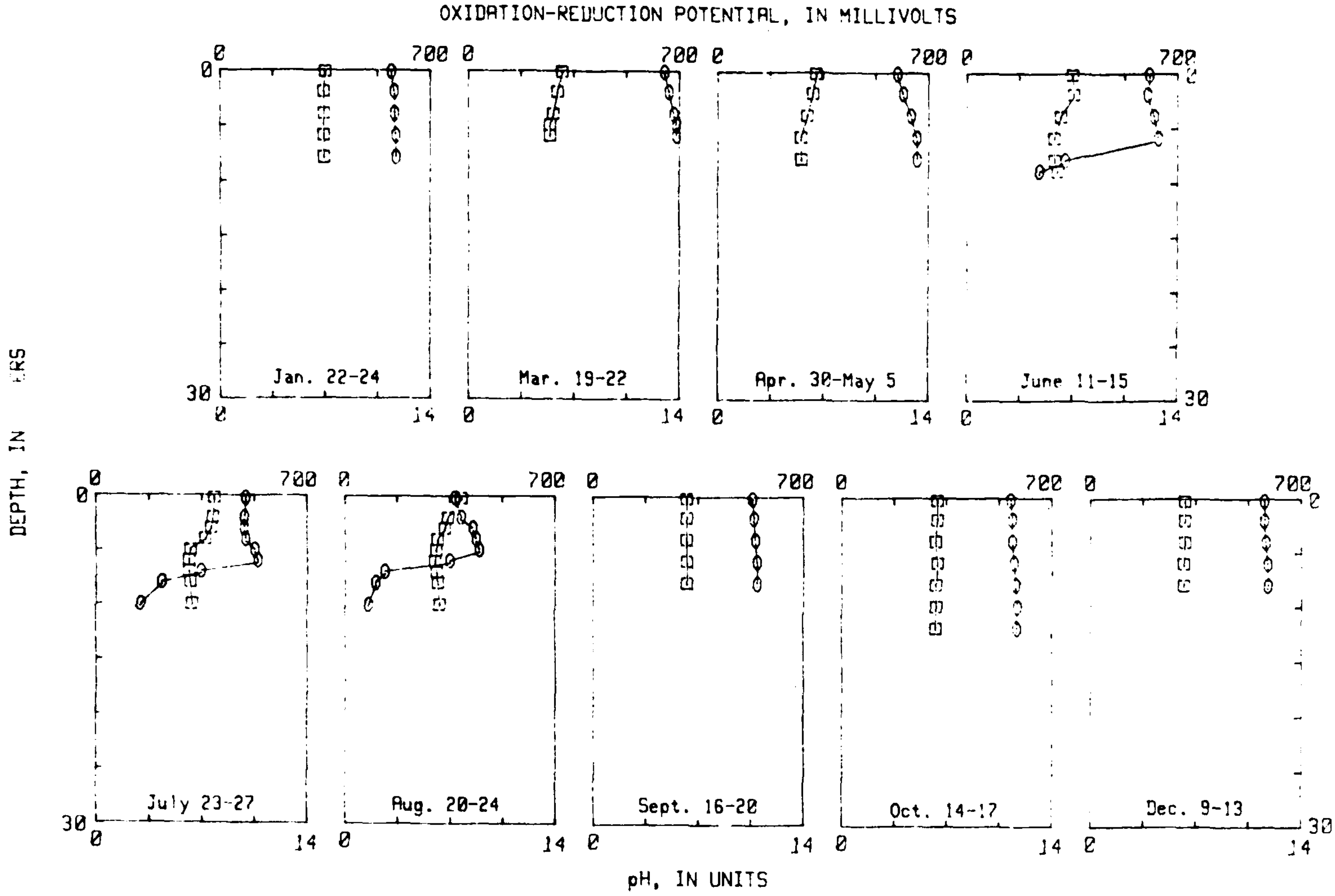
CH-04 (02339350) Wehadkee Creek at State Highway 244, near Abbottsford, Ga., 1979



EXPLANATION

O-Specific conductance

CH-04 (02339350) Wehadkee Creek at State Highway 244, near Abbottsford, Ga., 1979

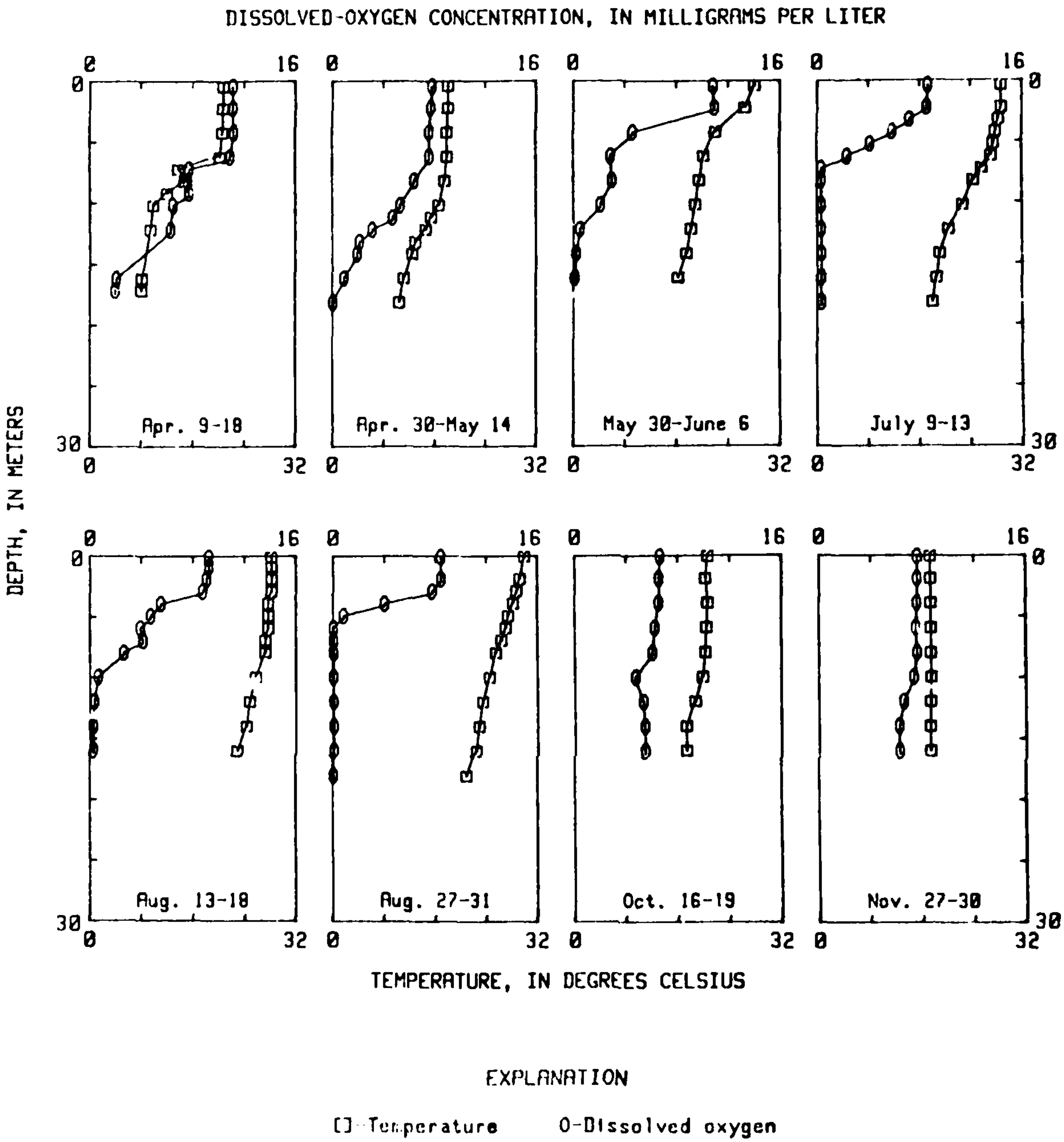


EXPLANATION

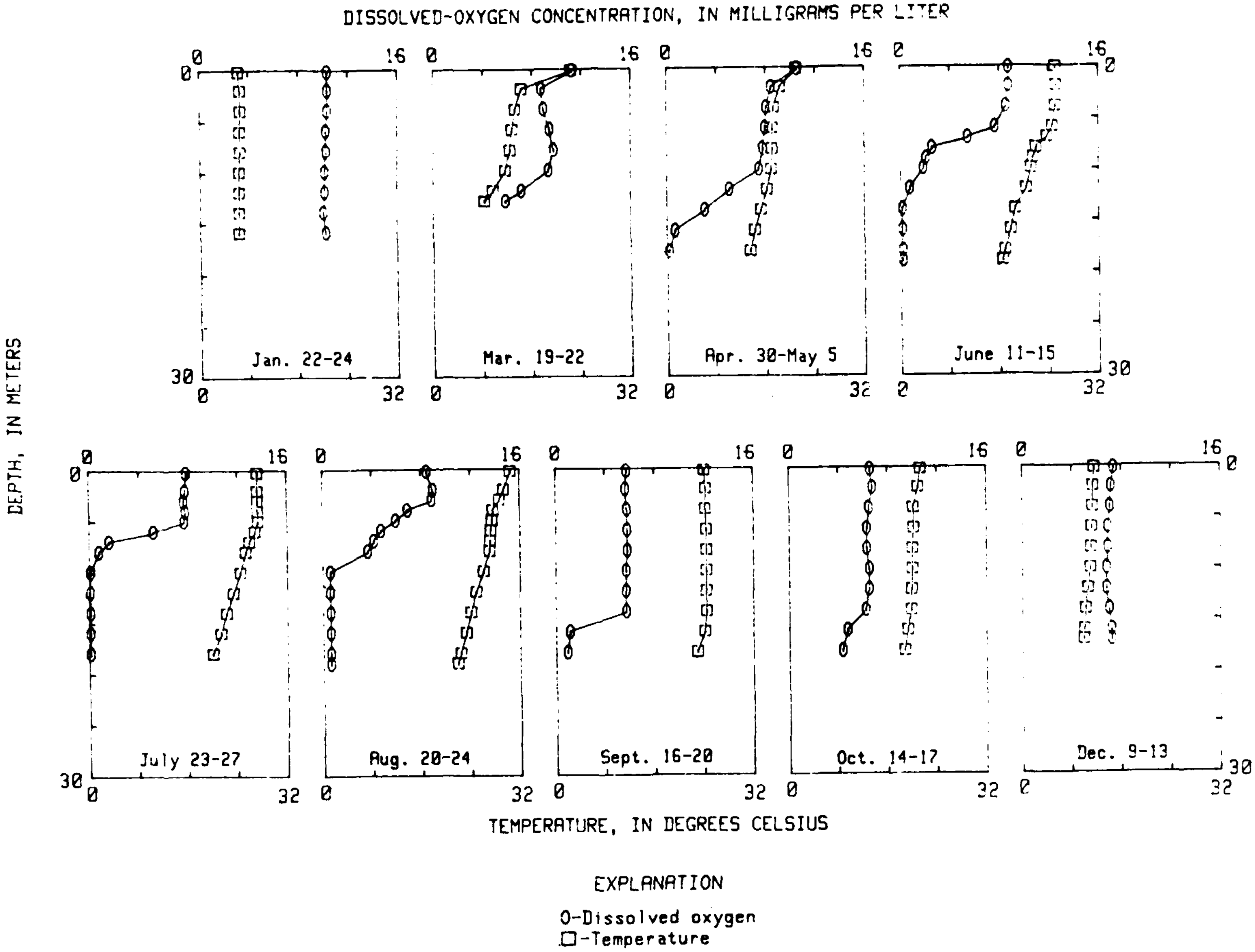
O-Oxidation-reduction potential

□-pH

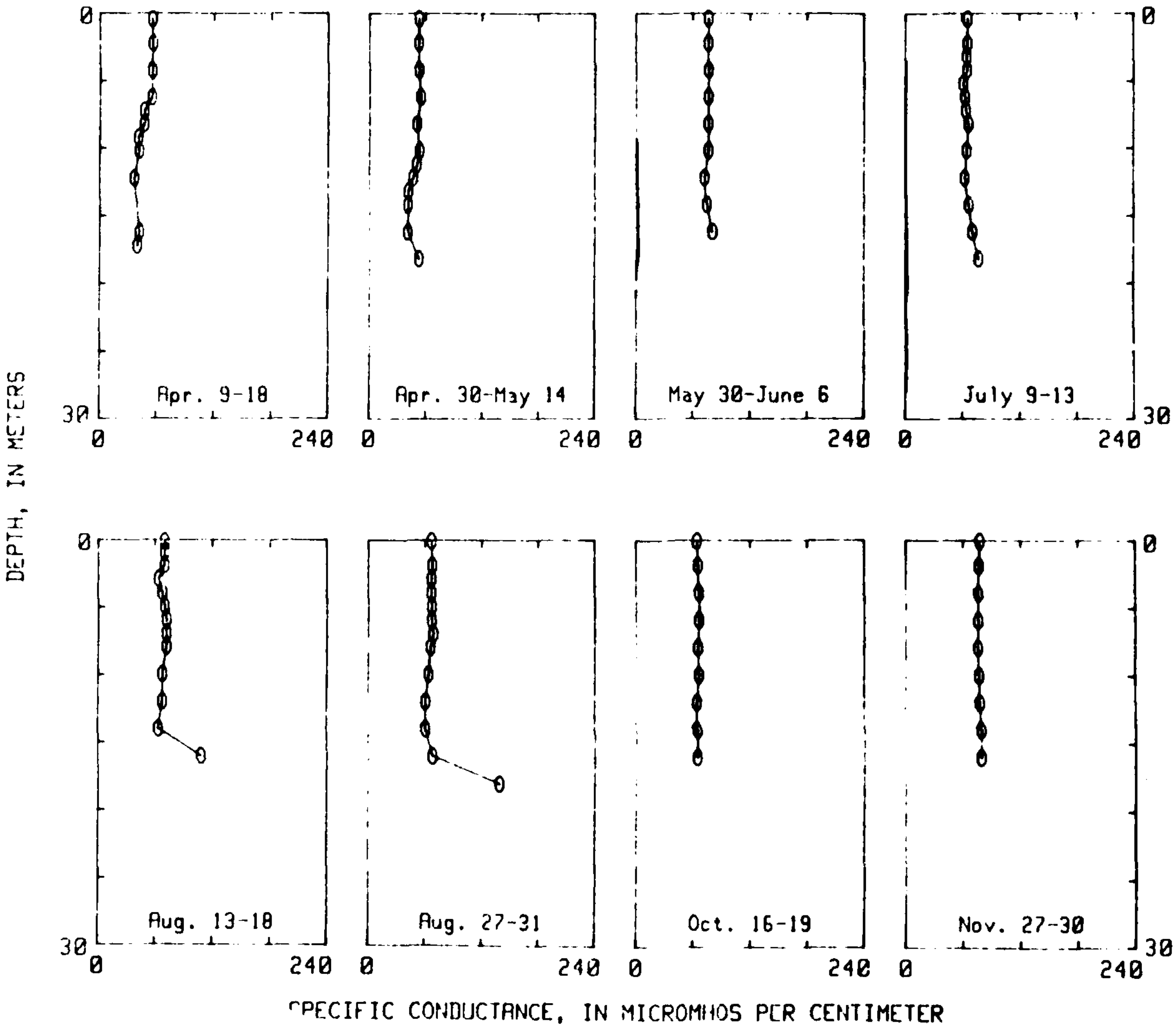
CH-04 (02339350) Wehadkee Creek at State Highway 244, near Abbottsford, Ga., 1979



CH-13 (02339362) Wehadkee Creek at State Highway 238, near Abbottsford, Ga., 1978



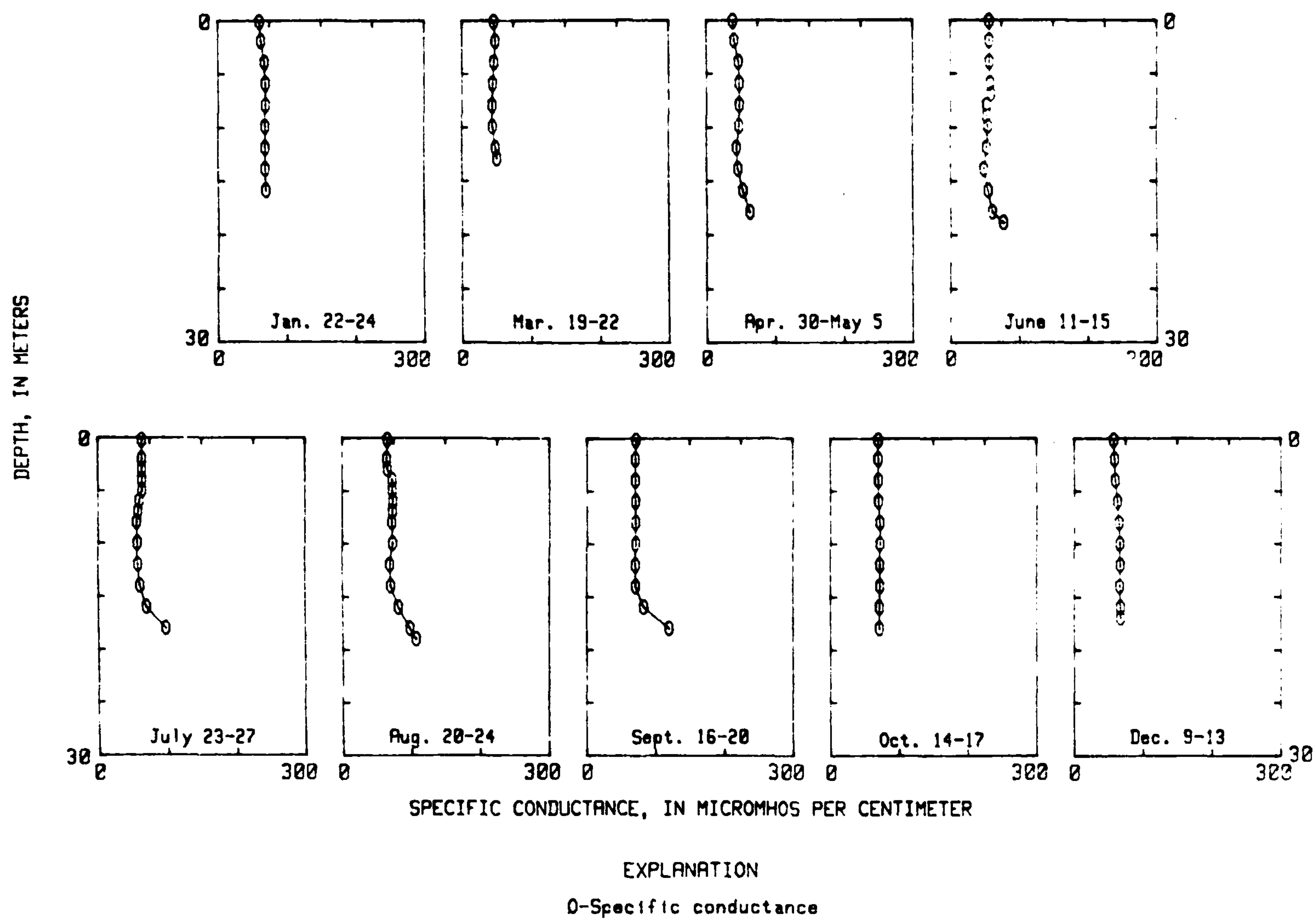
CH-13 (02339362) Wehadkee Creek at State Highway 238, near Abbottsford, Ga., 1979



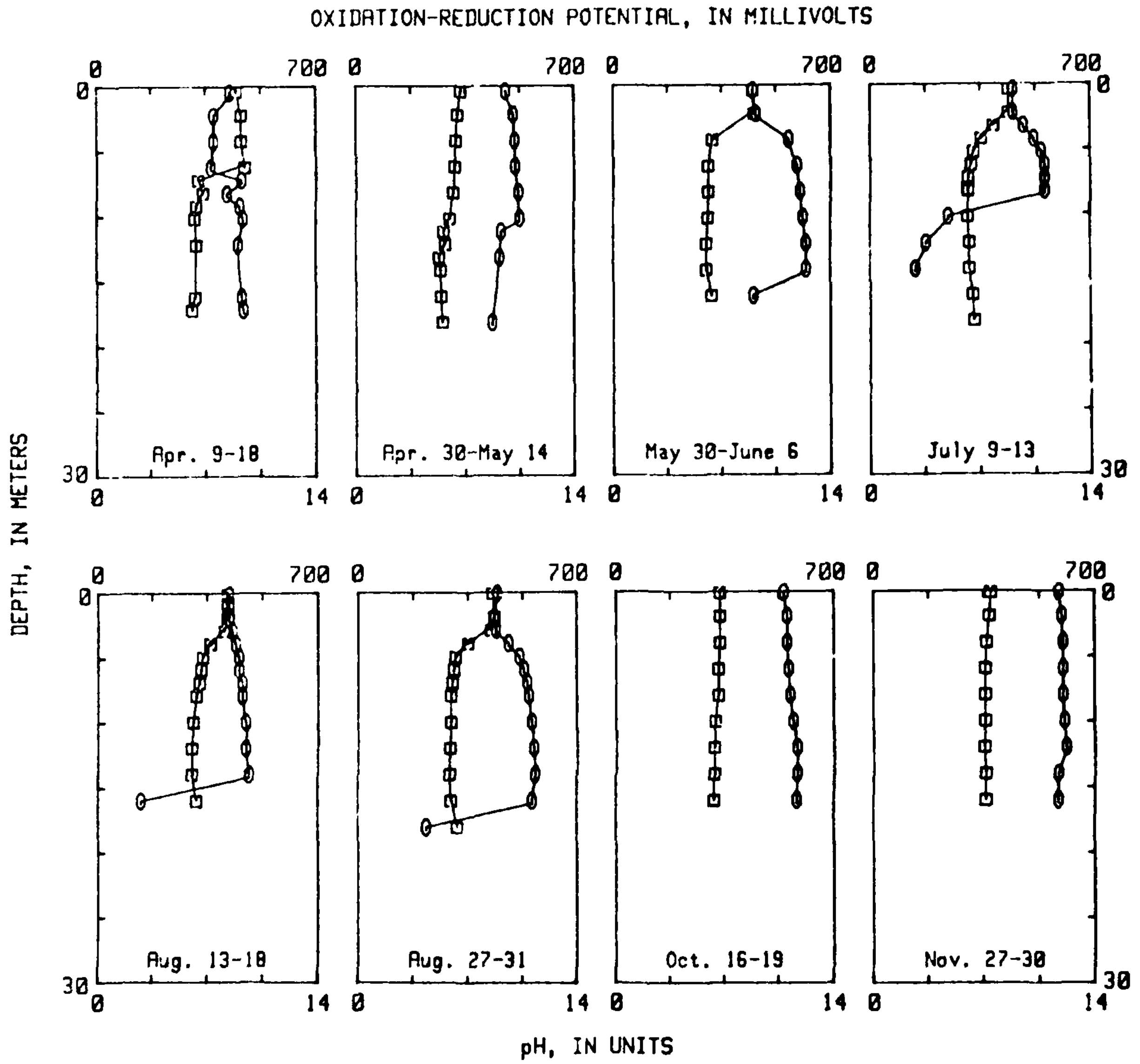
EXPLANATION

O Specific conductance

CH-13 (02339362) Wehadkee Creek at State Highway 238, near Abbottsford, Ga., 1978



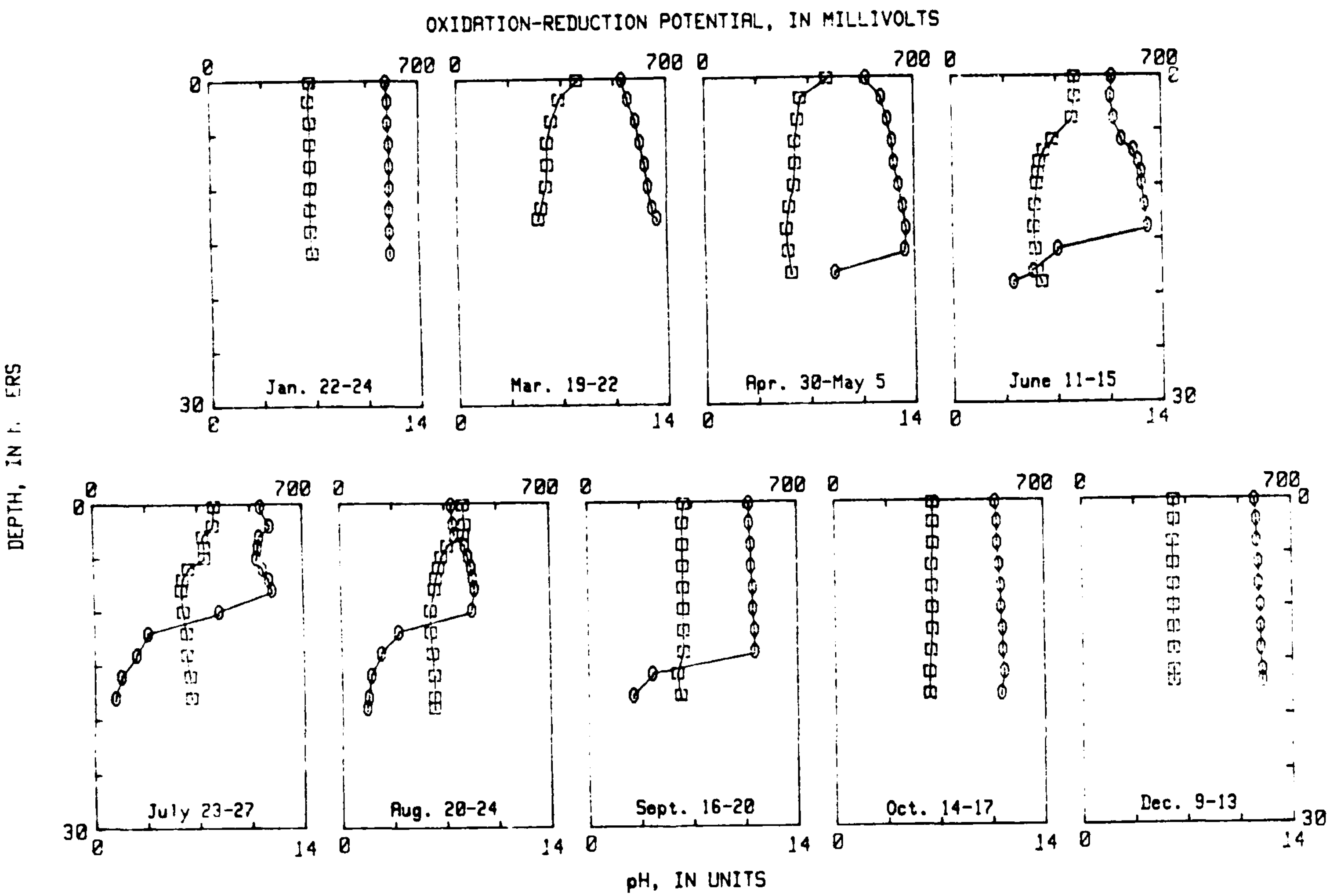
CH-13 (02339362) Wehadkee Creek at State Highway 238, near Abbottsford, Ga., 1979



EXPLANATION

O-Oxidation-reduction potential
□-pH

CH-13 (02339362) Wehadkee Creek at State Highway 238, near Abbottsford, Ga., 1978



EXPLANATION

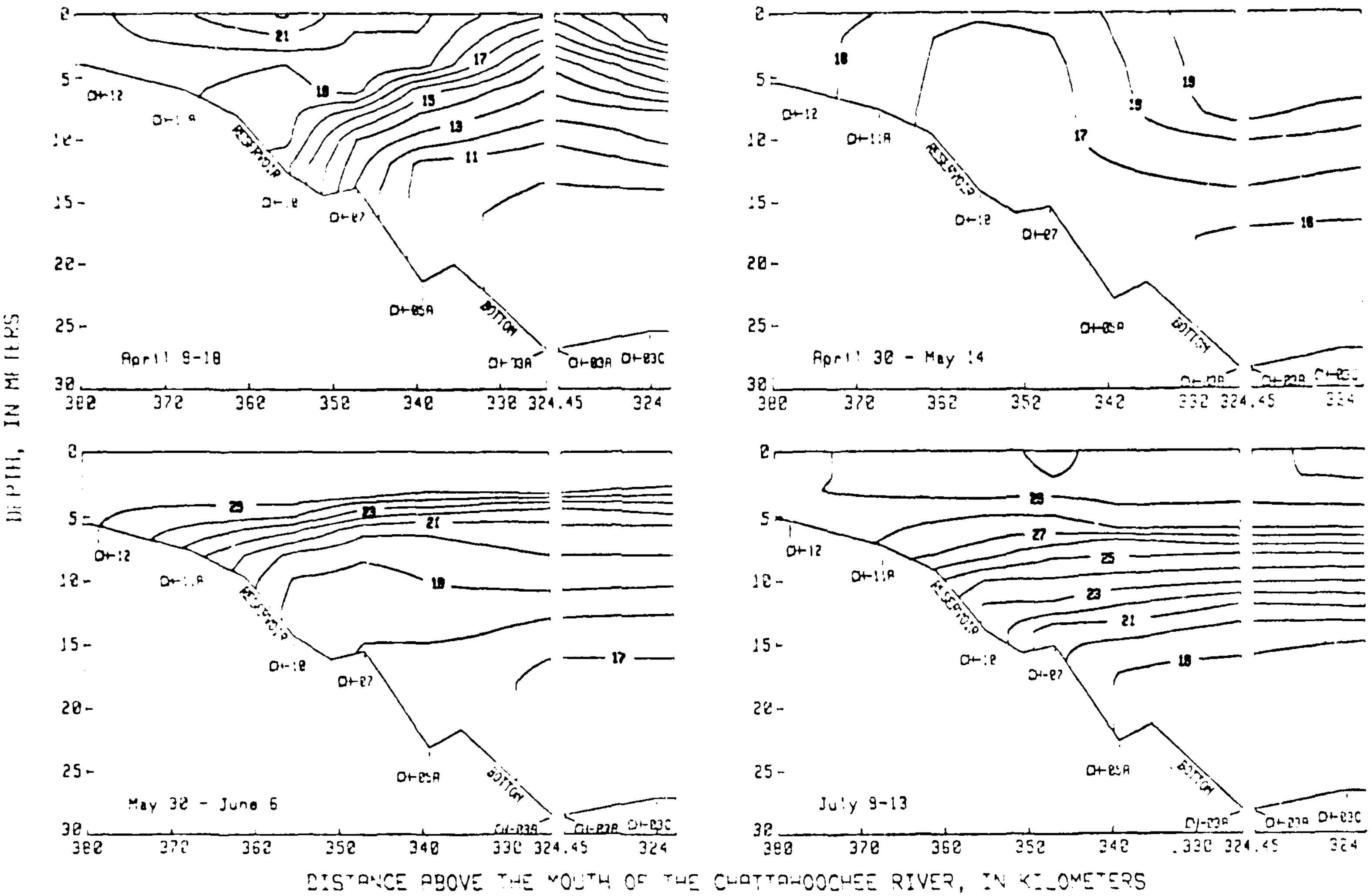
O-Oxidation-reduction potential

□-pH

CH-13 (02339362) Wehadkee Creek at State Highway 238, near Abbottsford, Ga., 1979

APPENDIX C-3

Isopleths showing longitudinal variations in on-site physical and chemical parameters in West Point Reservoir, April 1978-December 1979

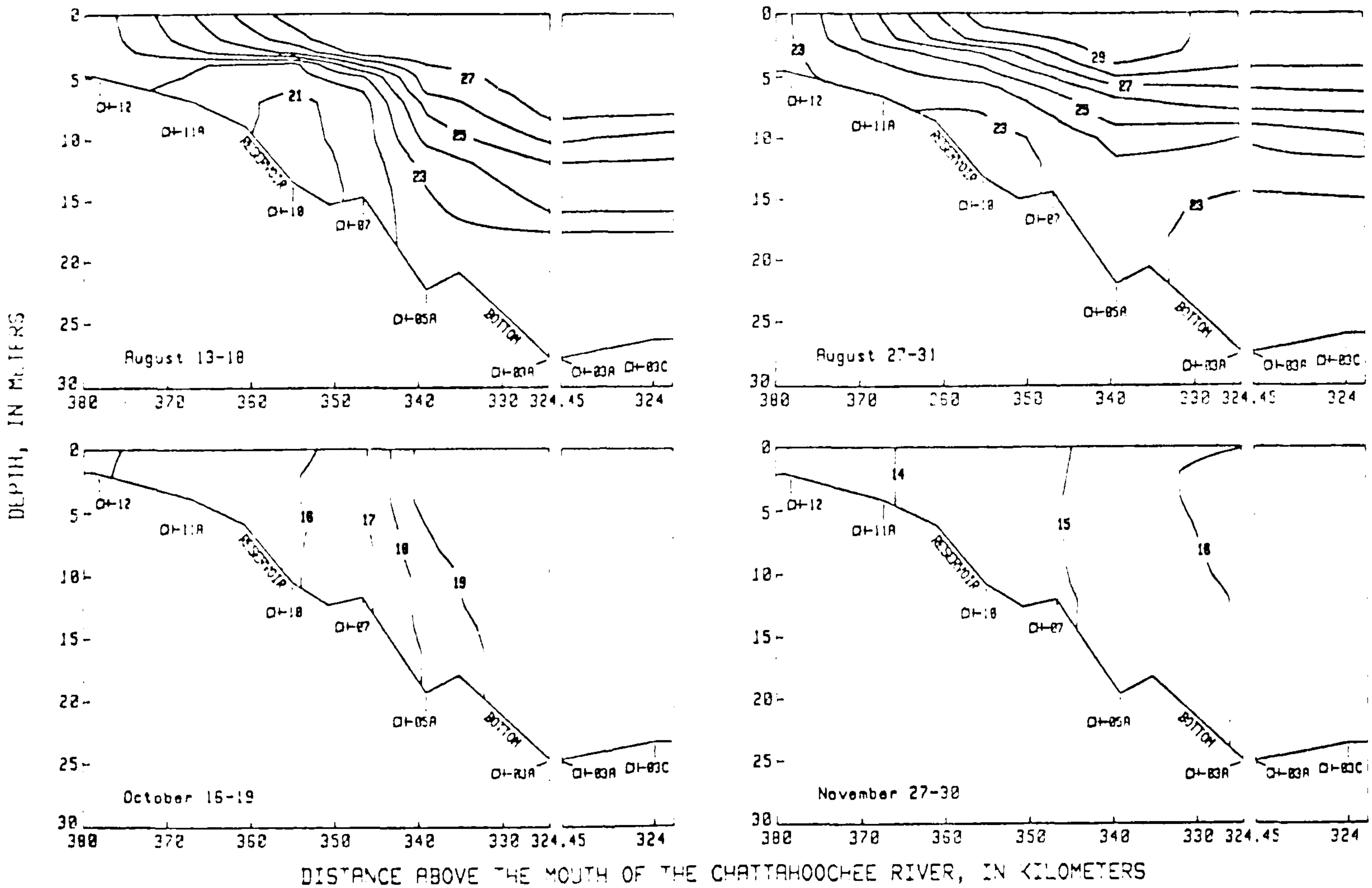


EXPLANATION

-20- LINE OF EQUAL WATER TEMPERATURE - Interval 1 degree Celsius

CH-05A WATER SAMPLING STATION

Water temperature, April-July 1979

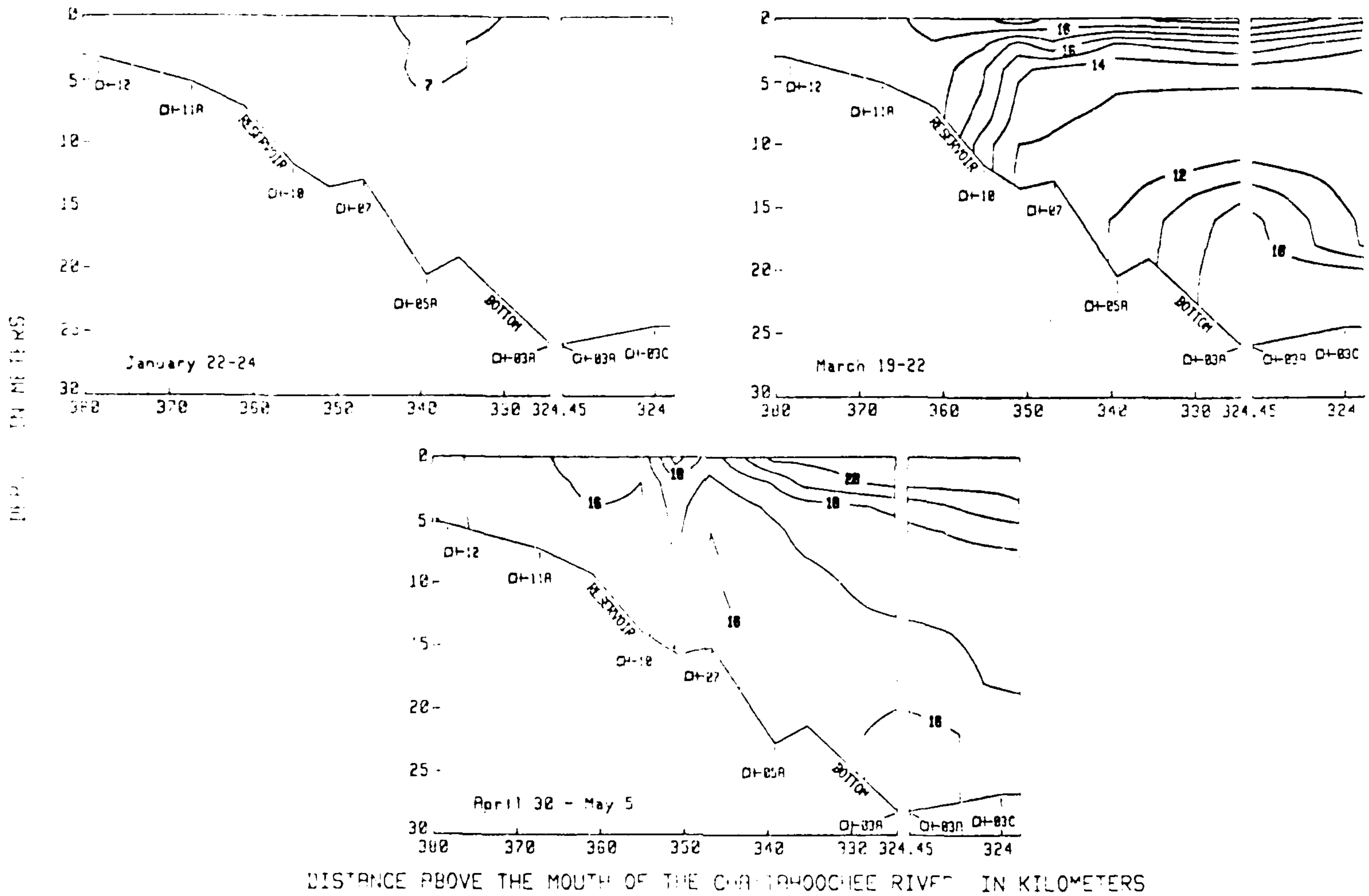


EXPLANATION

-21- LINE OF EQUAL WATER TEMPERATURE - Interval 1 degree Celsius

CH-25A WATER SAMPLING STATION

Water temperature, August-November 1978

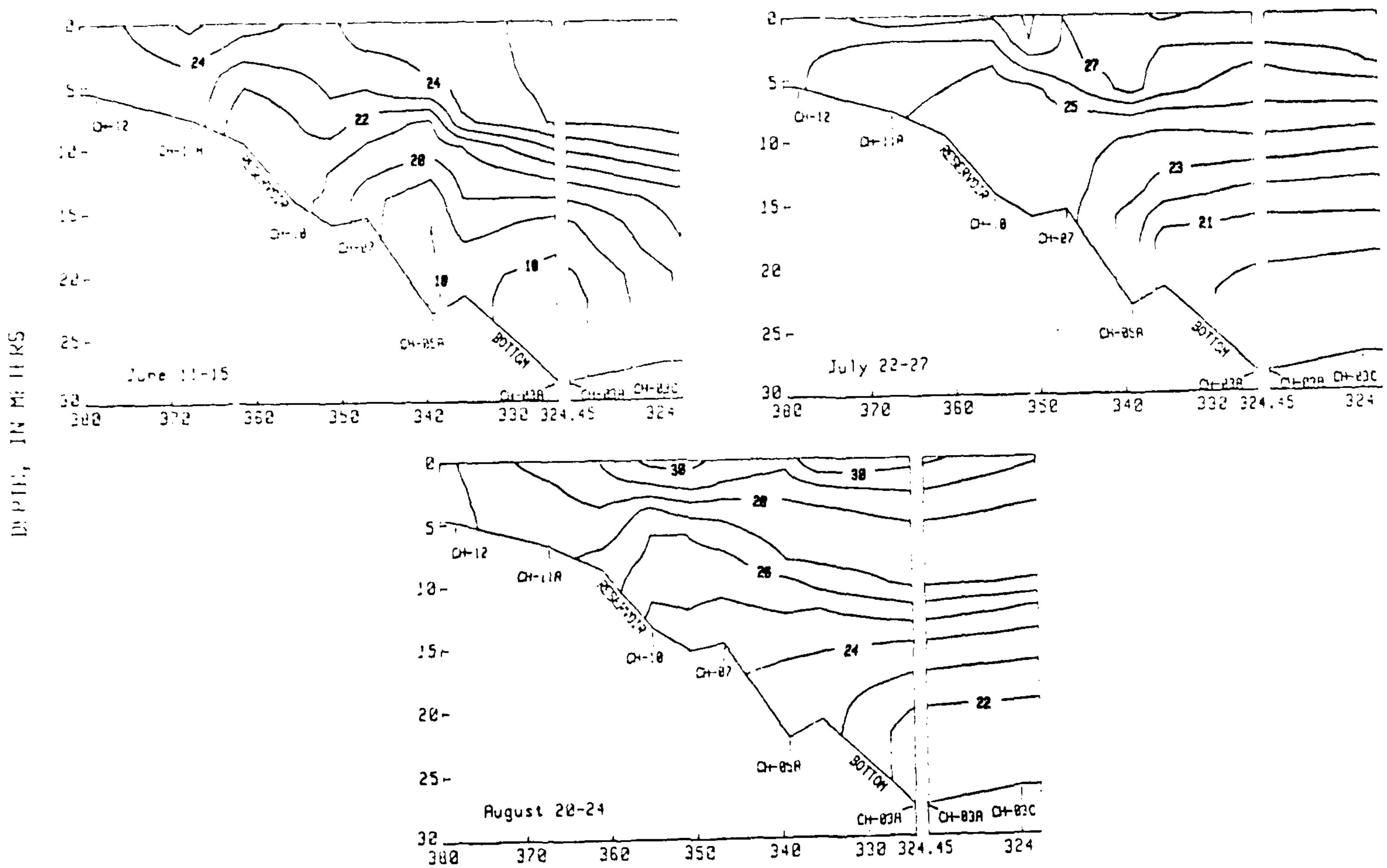


EXPLANATION

--18-- LINE OF EQUAL WATER TEMPERATURE - Interval 1 degree Celsius

CH-25A WATER SAMPLING STATION

Water temperature, January-May 1979



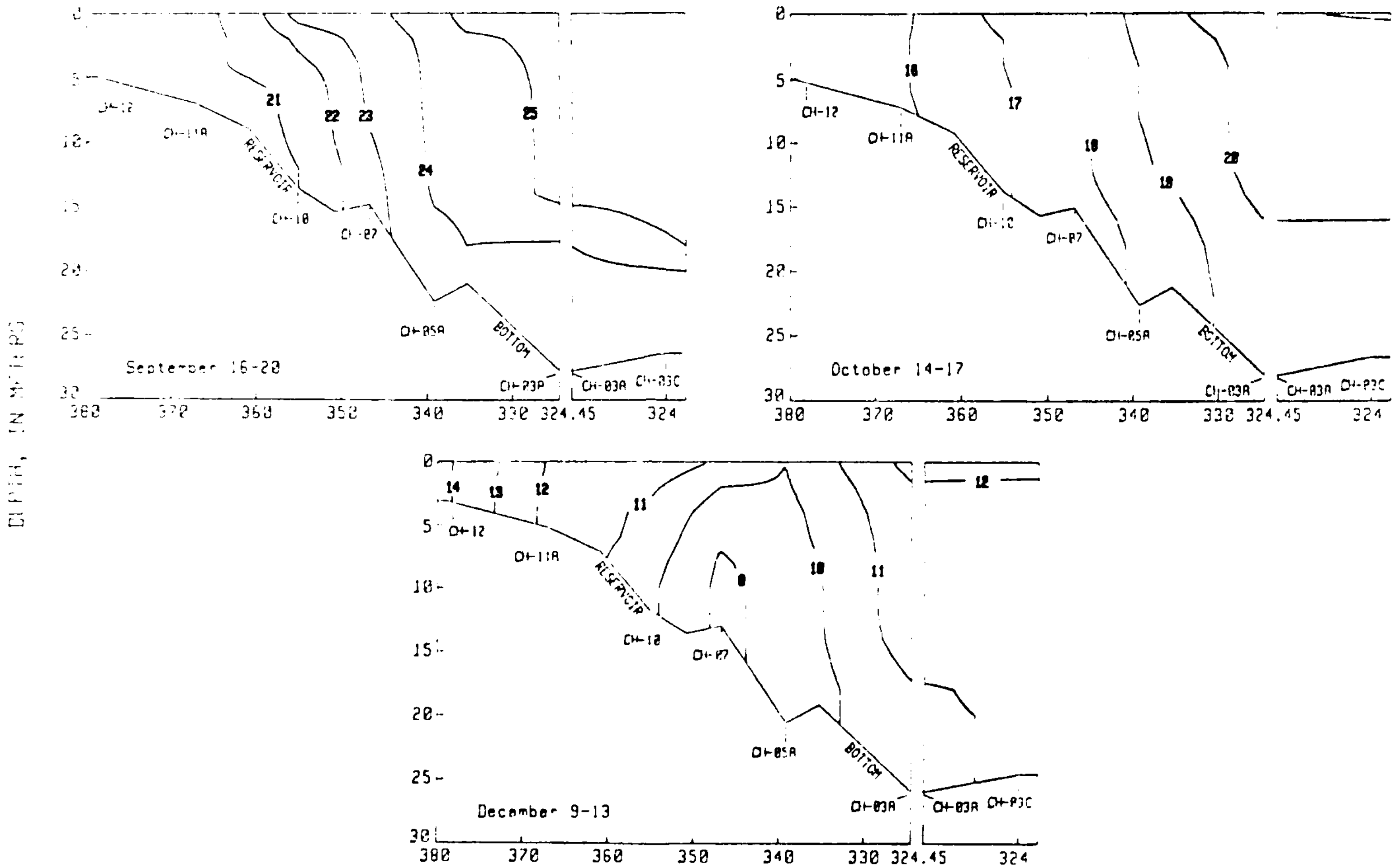
DISTANCE ABOVE THE MOUTH OF THE CHATTAHOOCHEE RIVER, IN KILOMETERS

EXPLANATION

--24-- LINE OF EQUAL WATER TEMPERATURE - Interval 1 degree Celsius

CH-059 WATER SAMPLING STATION

Water temperature, June-August 1979



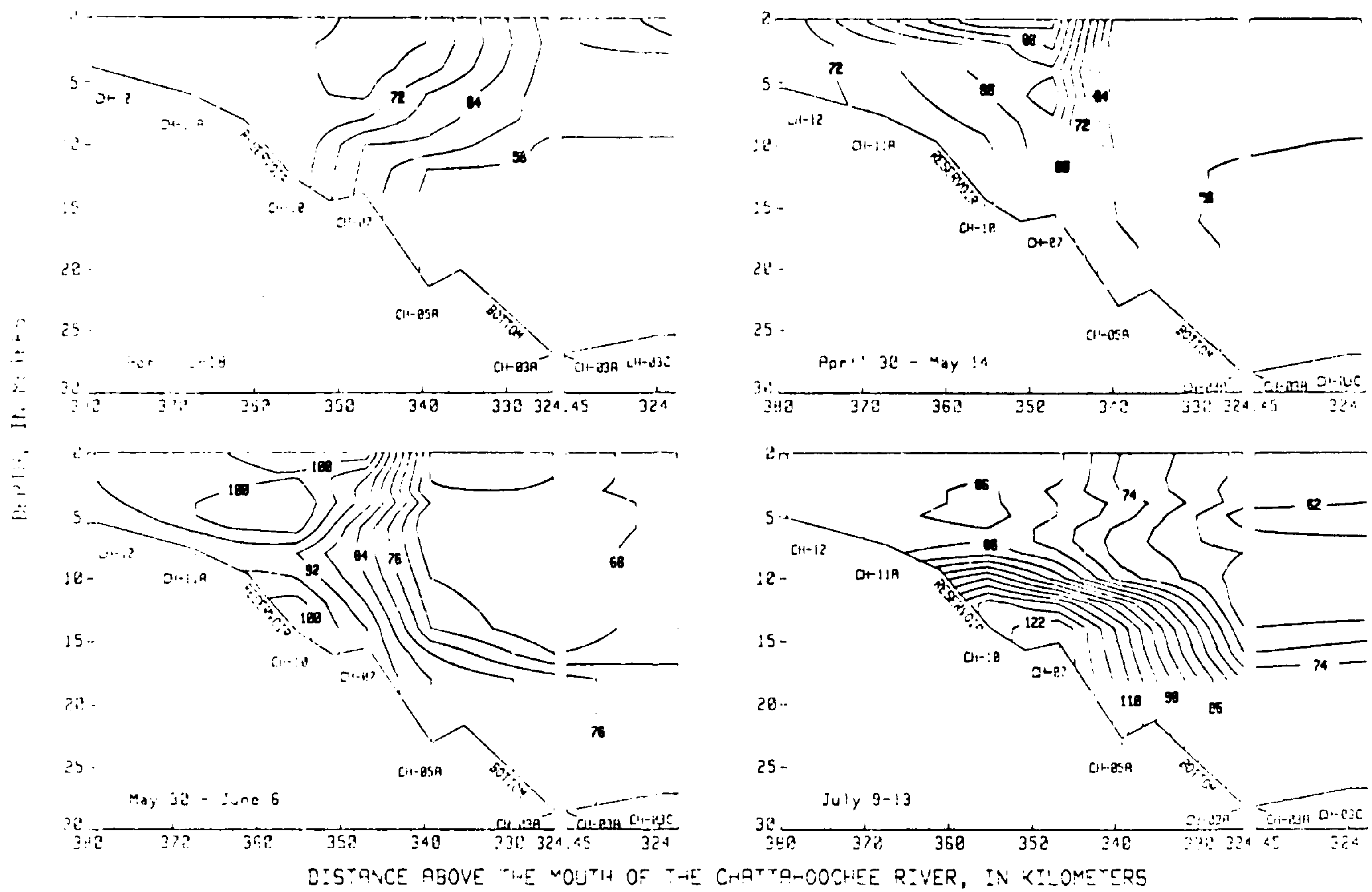
DISTANCE ABOVE THE MOUTH OF THE CHATTAHOOCHEE RIVER, IN KILOMETERS

EXPLANATION

--21-- LINE OF EQUAL WATER TEMPERATURE - Interval 1 degree Celsius

CH-05A WATER SAMPLING STATION

Water temperature, September-December 1979

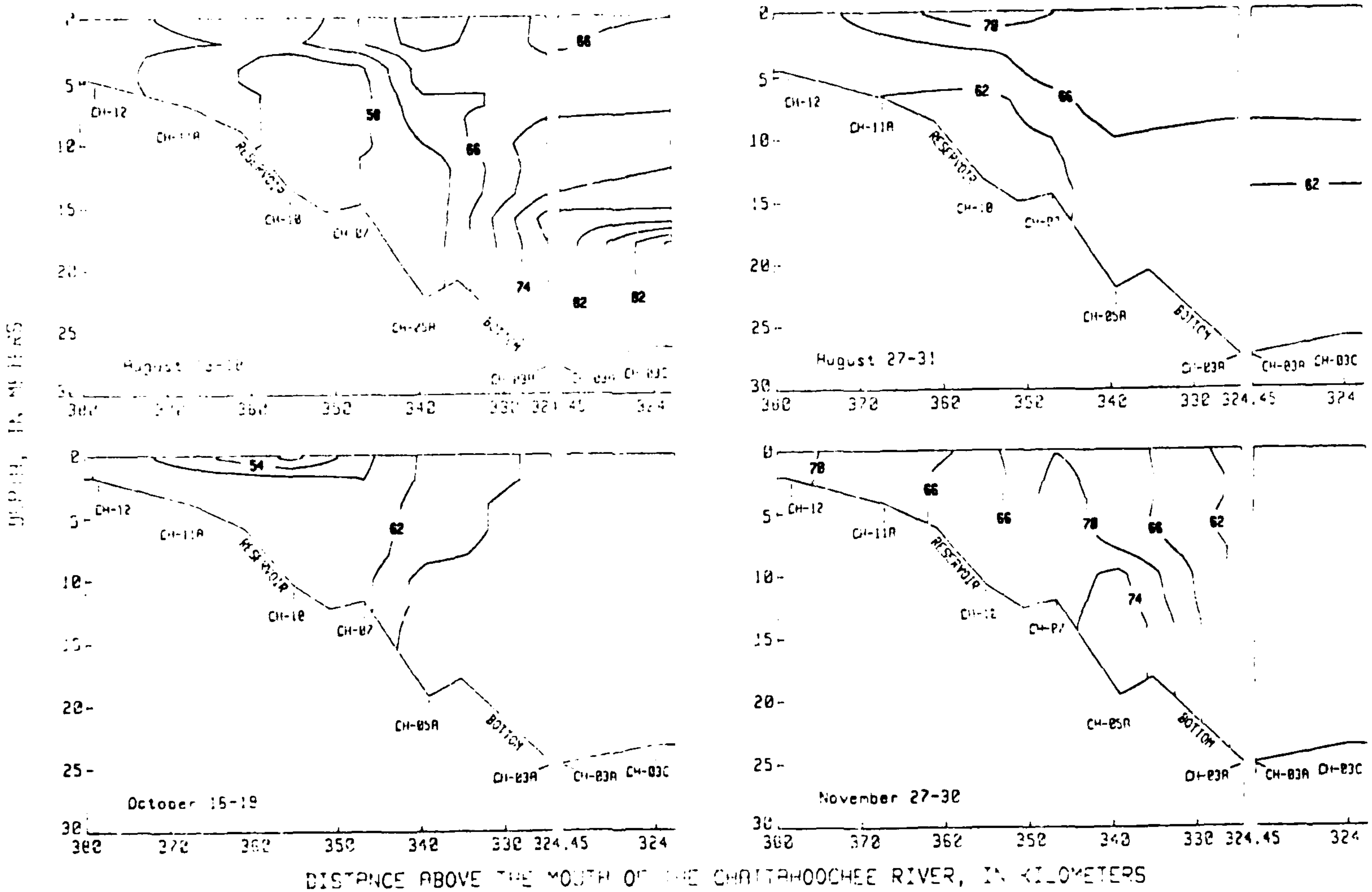


EXPLANATION

--55-- LINE OF EQUAL SPECIFIC CONDUCTANCE - Interval 4 micromhos per centimeter

CH-25A WATER SAMPLING STATION

Specific conductance, April-July 1978

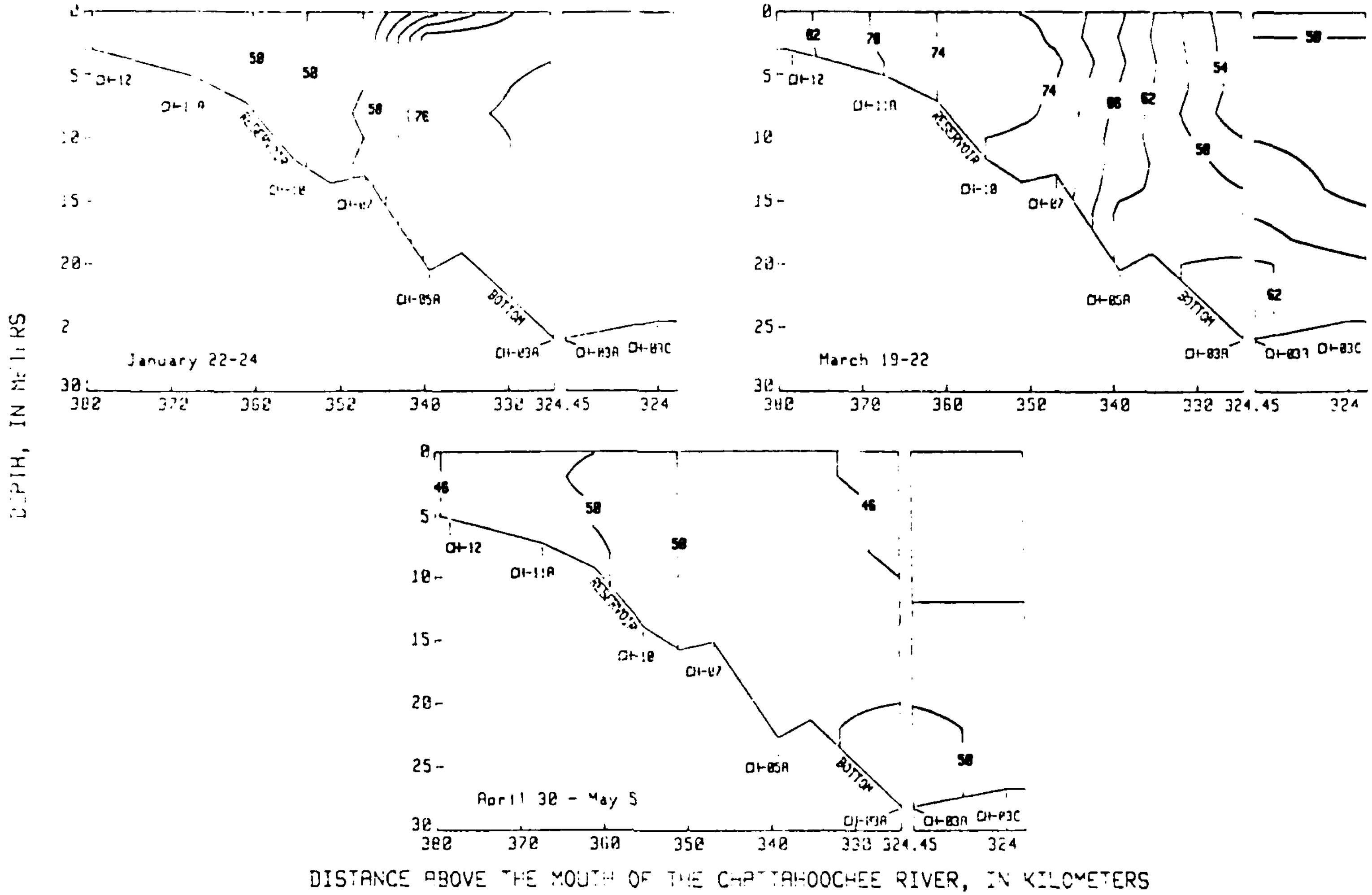


EXPLANATION

— 58 — LINE OF EQUAL SPECIFIC CONDUCTANCE - Interval 4 micromhos per centimeter

CH-05A WATER SAMPLING STATION

Specific conductance, August-November 1978

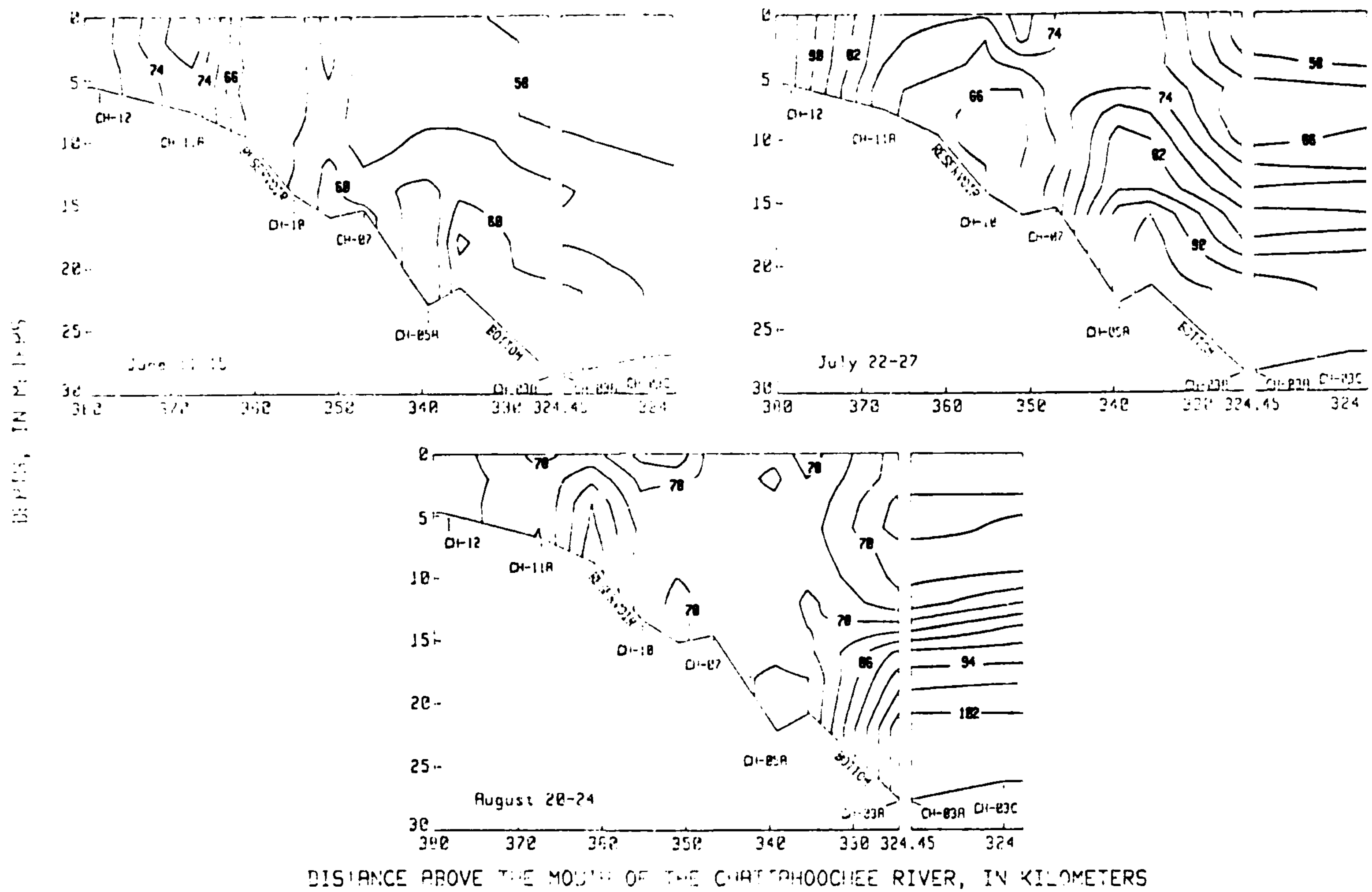


EXPLANATION

--50-- LINE OF EQUAL SPECIFIC CONDUCTANCE - Interval 4 micromhos per centimeter

CH-05A WATER SAMPLING STATION

Specific conductance, January-May 1979

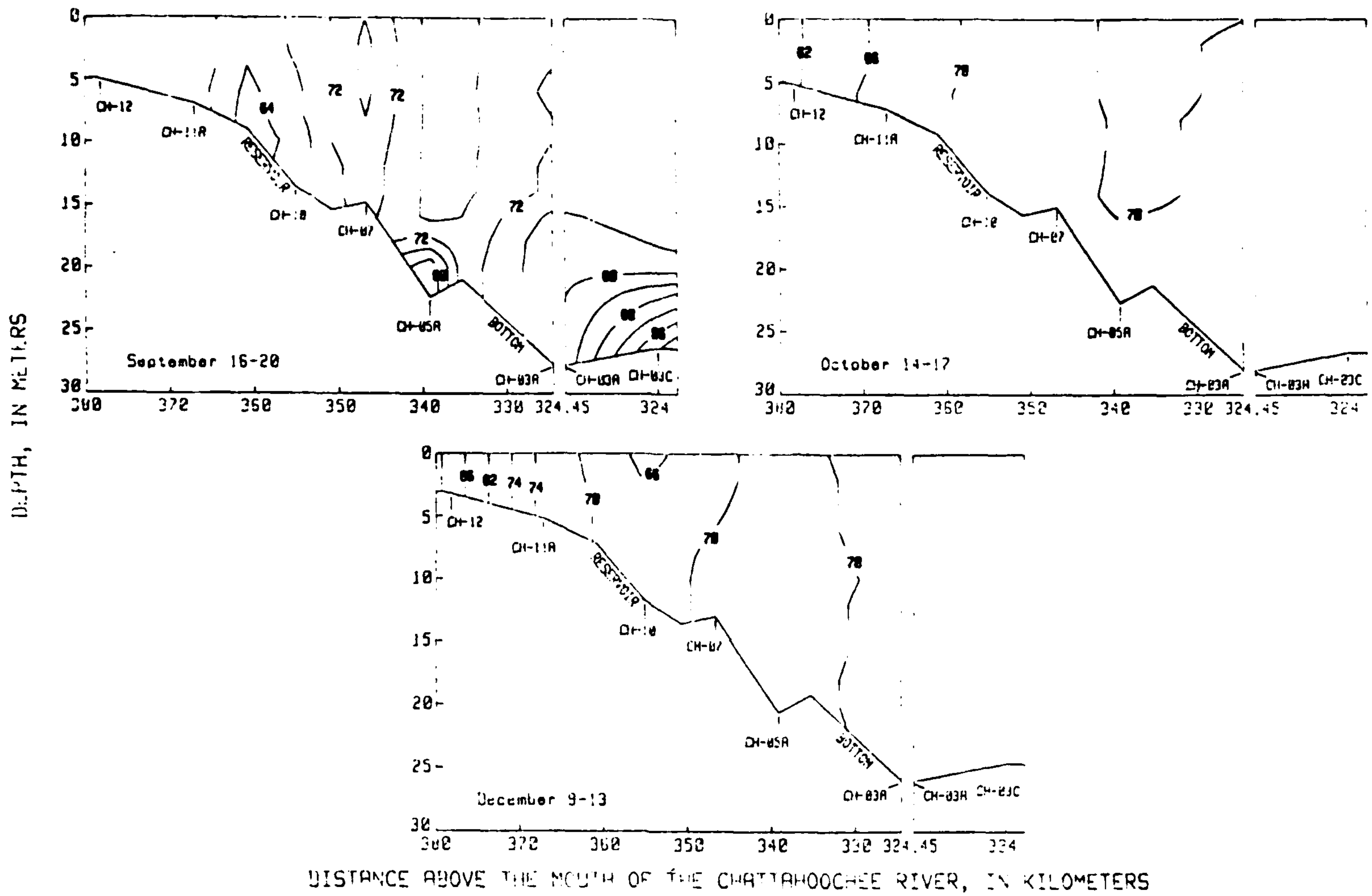


EXPLANATION

--62-- LINE OF EQUAL SPECIFIC CONDUCTANCE - Interval 4 micromhos per centimeter

CH-05A WATER SAMPLING STATION

Specific conductance, June-August 1979

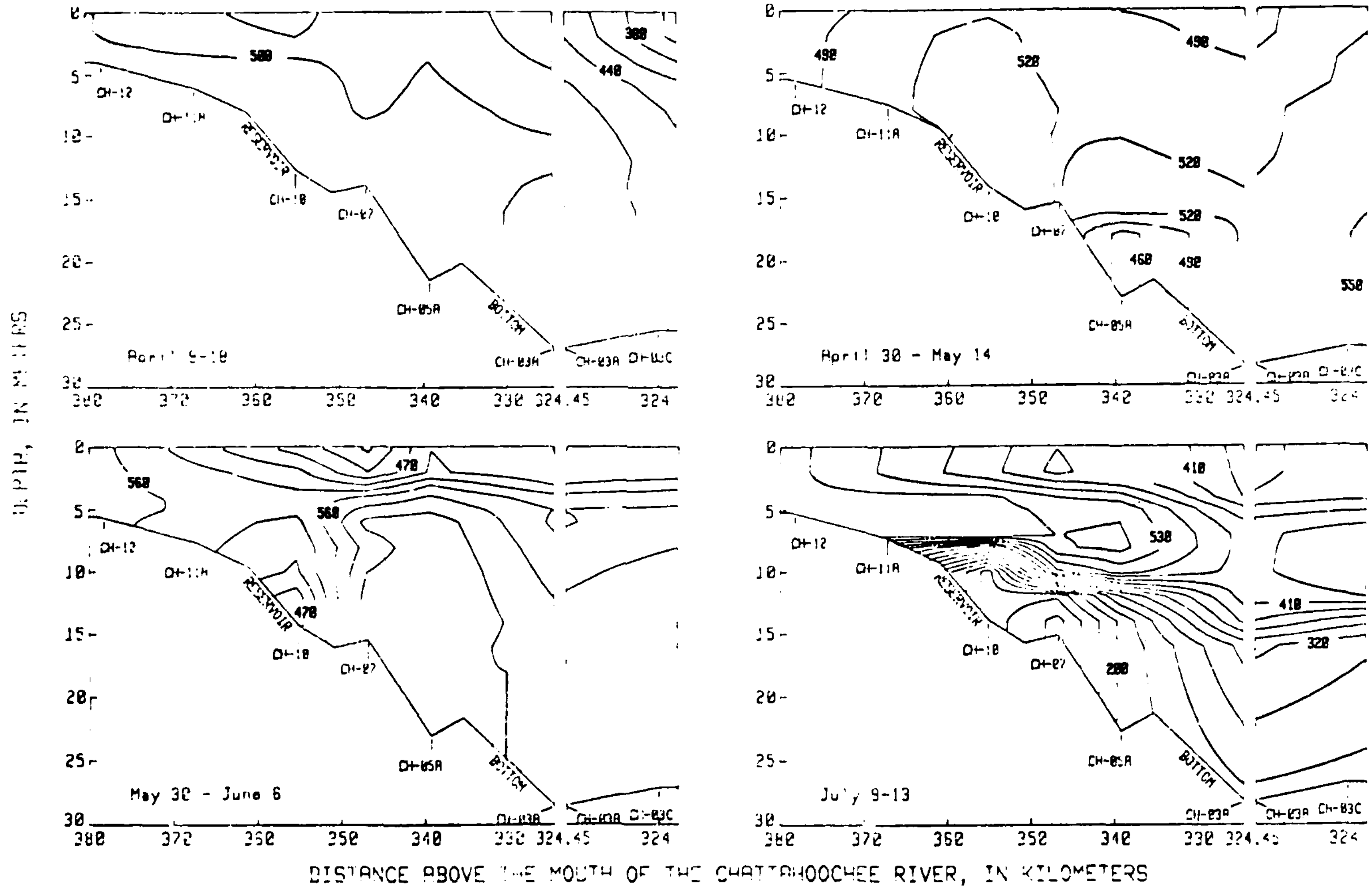


EXPLANATION

--68-- LINE OF EQUAL SPECIFIC CONDUCTANCE - Interval 4 micromhos per centimeter

CH-25A WATER SAMPLING STATION

Specific conductance, September-December 1979

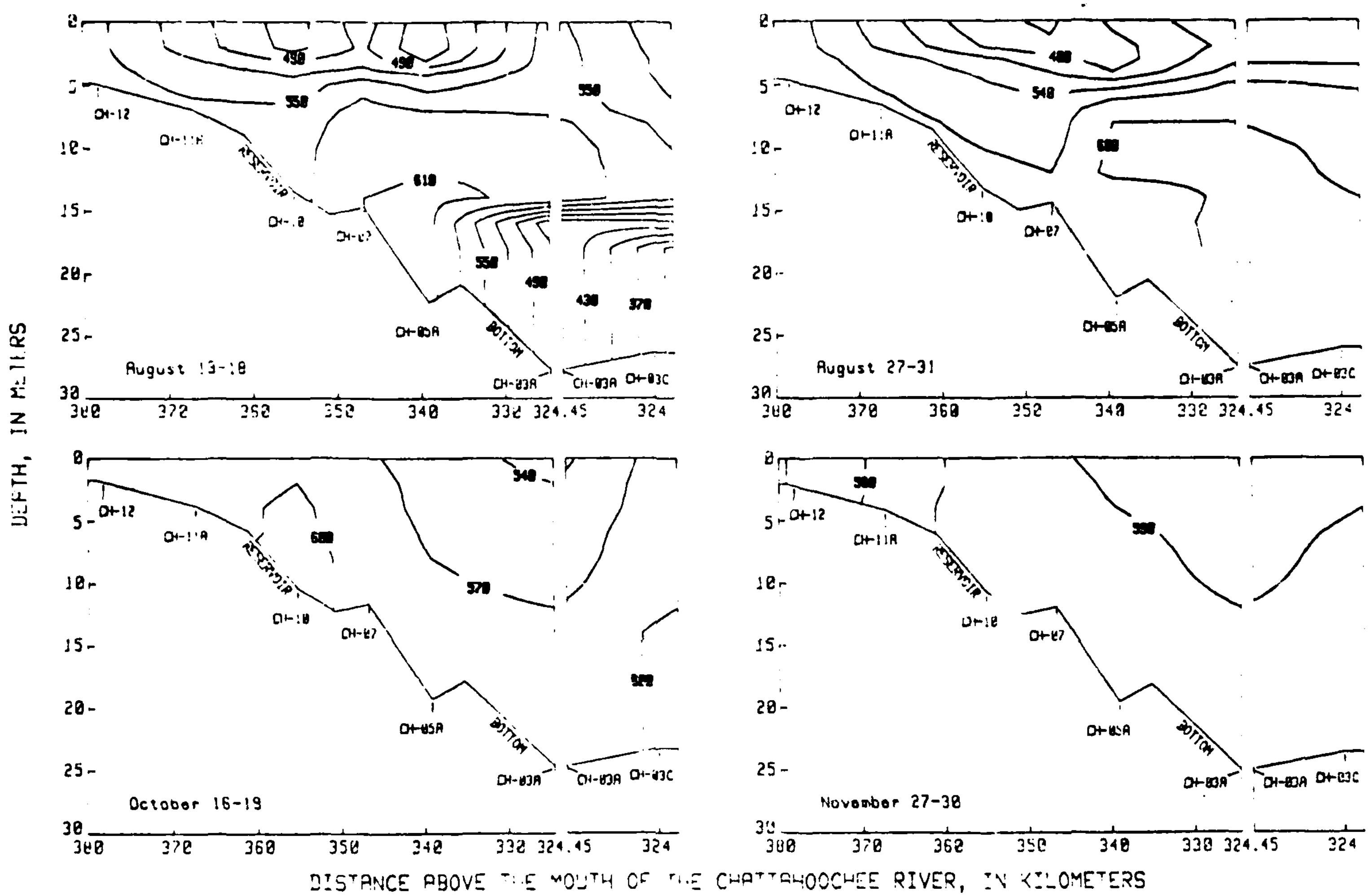


EXPLANATION

--500-- LINE OF EQUAL OXIDATION-REDUCTION POTENTIAL - Interval 30 millivolts

CH-05A WATER SAMPLING STATION

Oxidation-reduction potential, April-July 1978

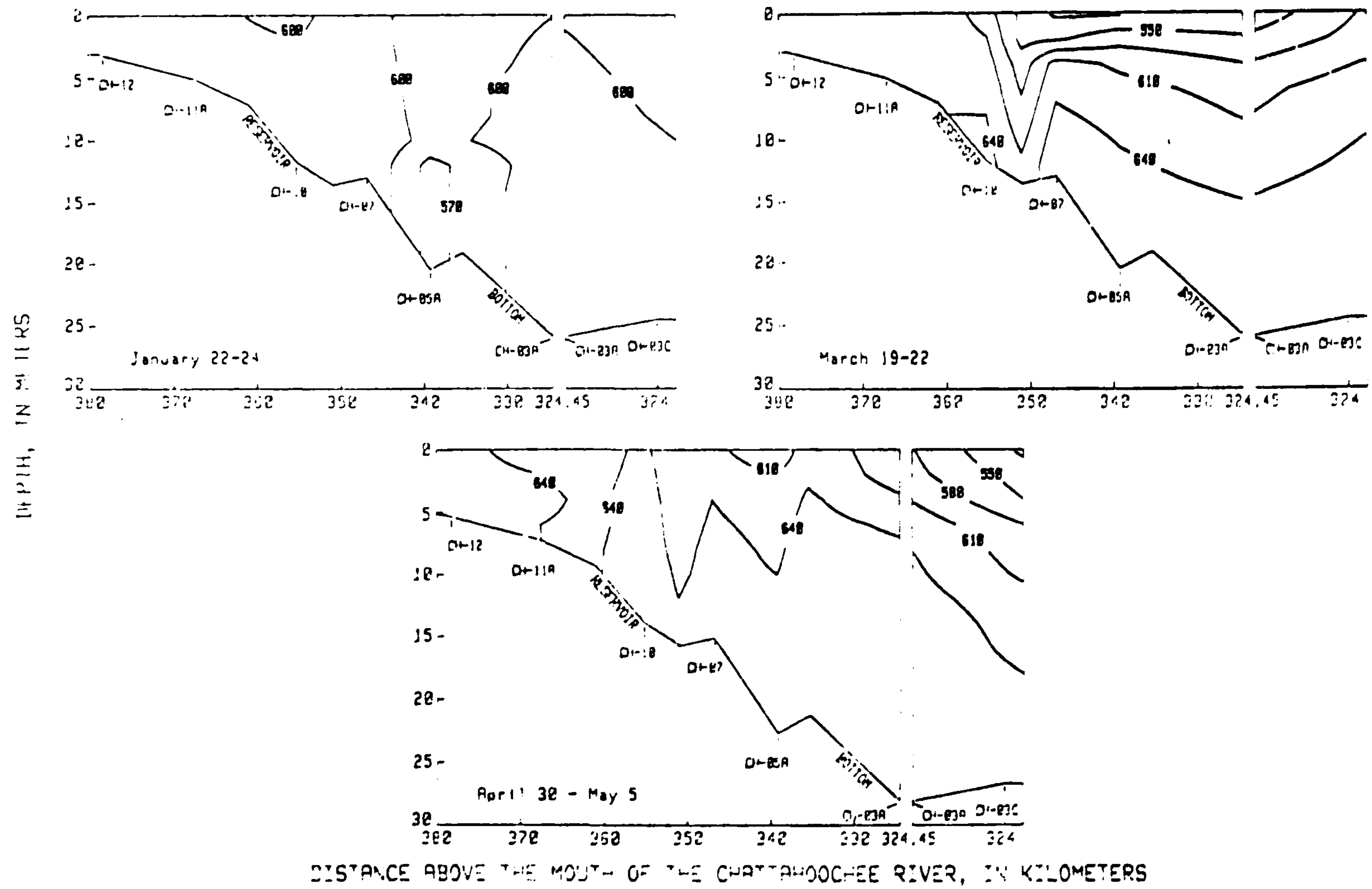


EXPLANATION

--522-- LINE OF EQUAL OXIDATION-REDUCTION POTENTIAL - Interval 30 millivolts

CH-05A WATER SAMPLING STATION

Oxidation-reduction potential, August-November 1978

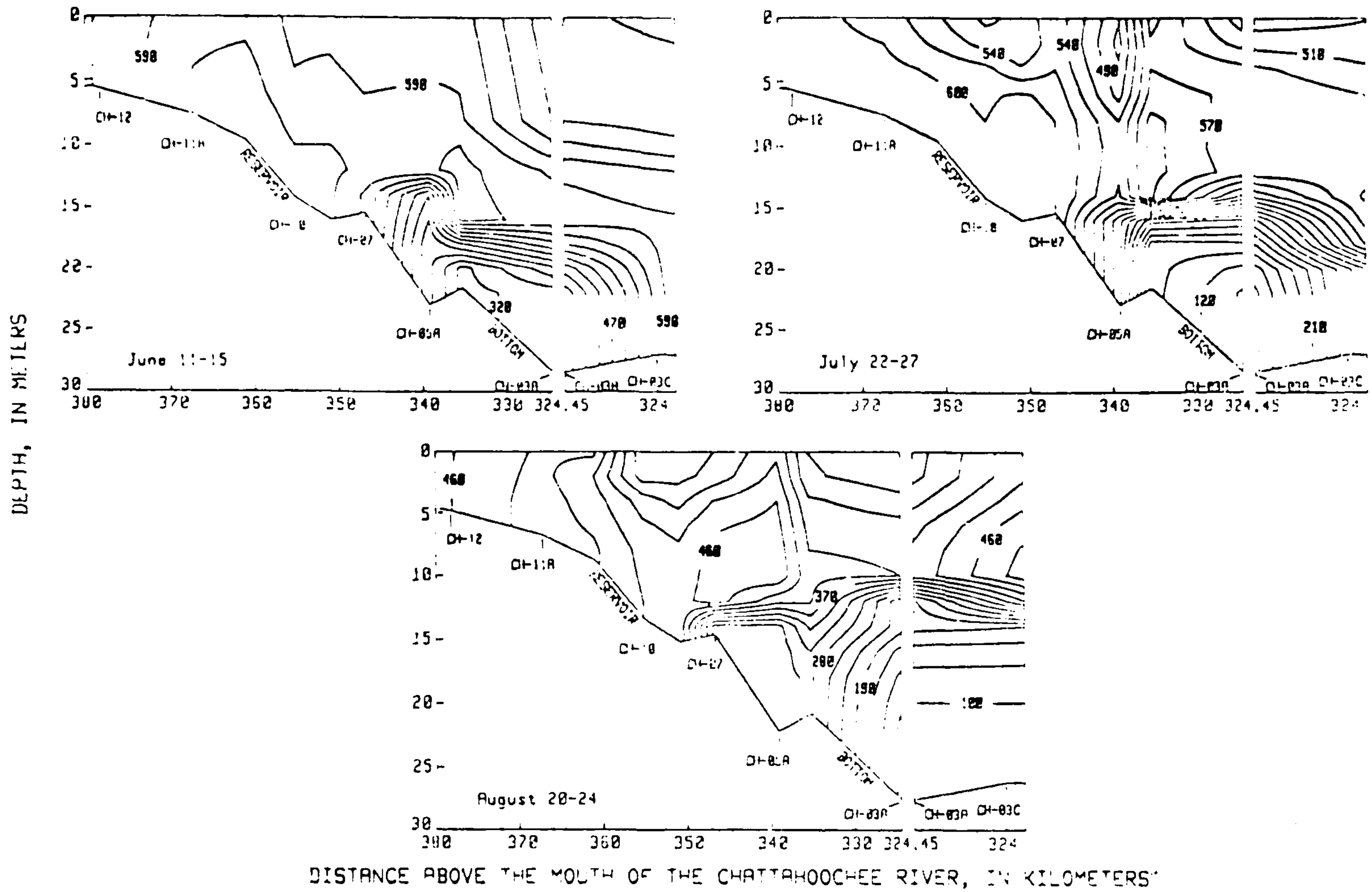


EXPLANATION

--500-- LINE OF EQUAL OXIDATION-REDUCTION POTENTIAL - Interval 30 millivolts

CH-05A WATER SAMPLING STATION

Oxidation-reduction potential, January-May 1979

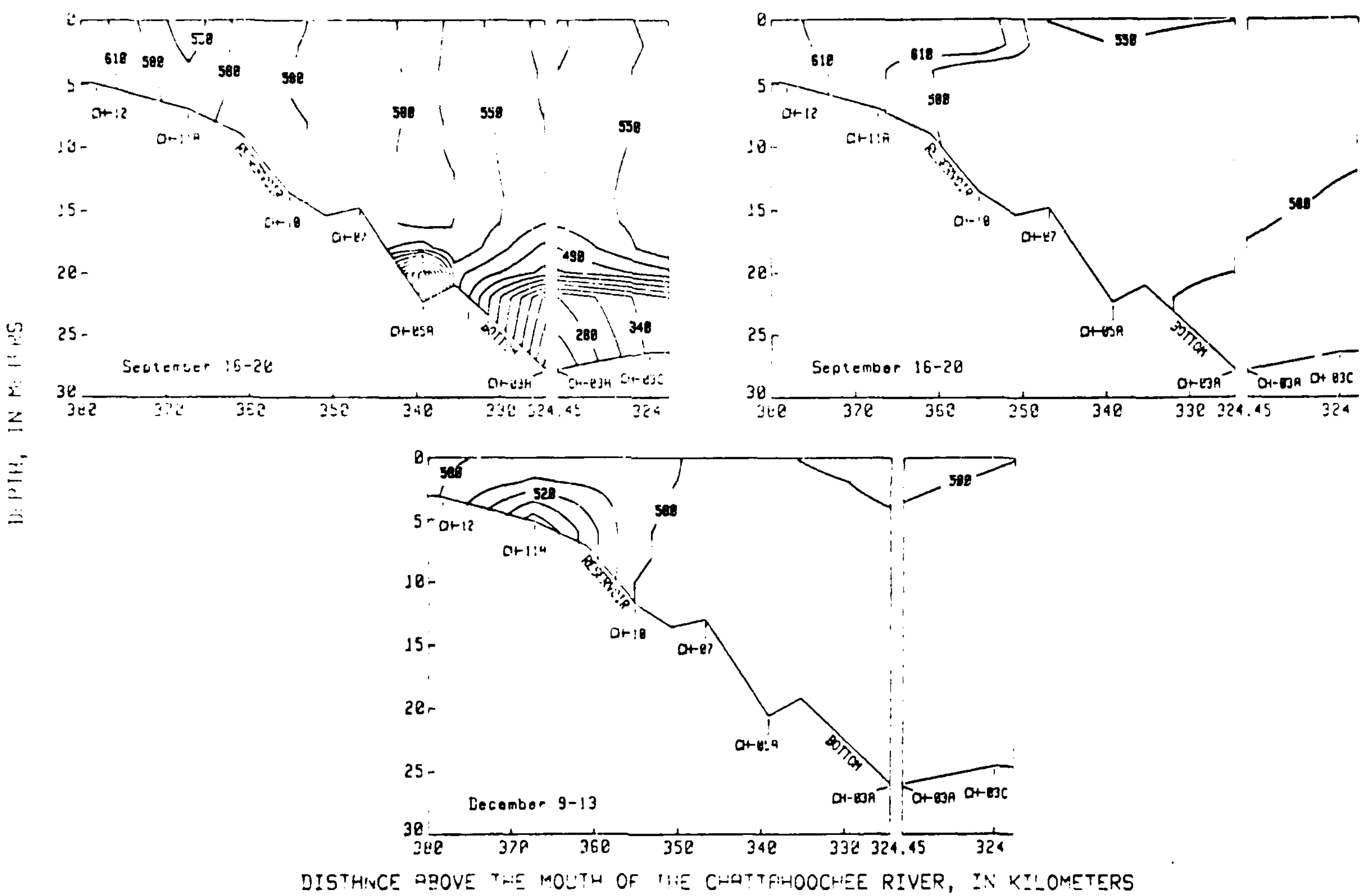


EXPLANATION

--620-- LINE OF EQUAL OXIDATION-REDUCTION POTENTIAL - Interval 30 millivolts

CH-05A WATER SAMPLING STATION

Oxidation-reduction potential, June-August 1979

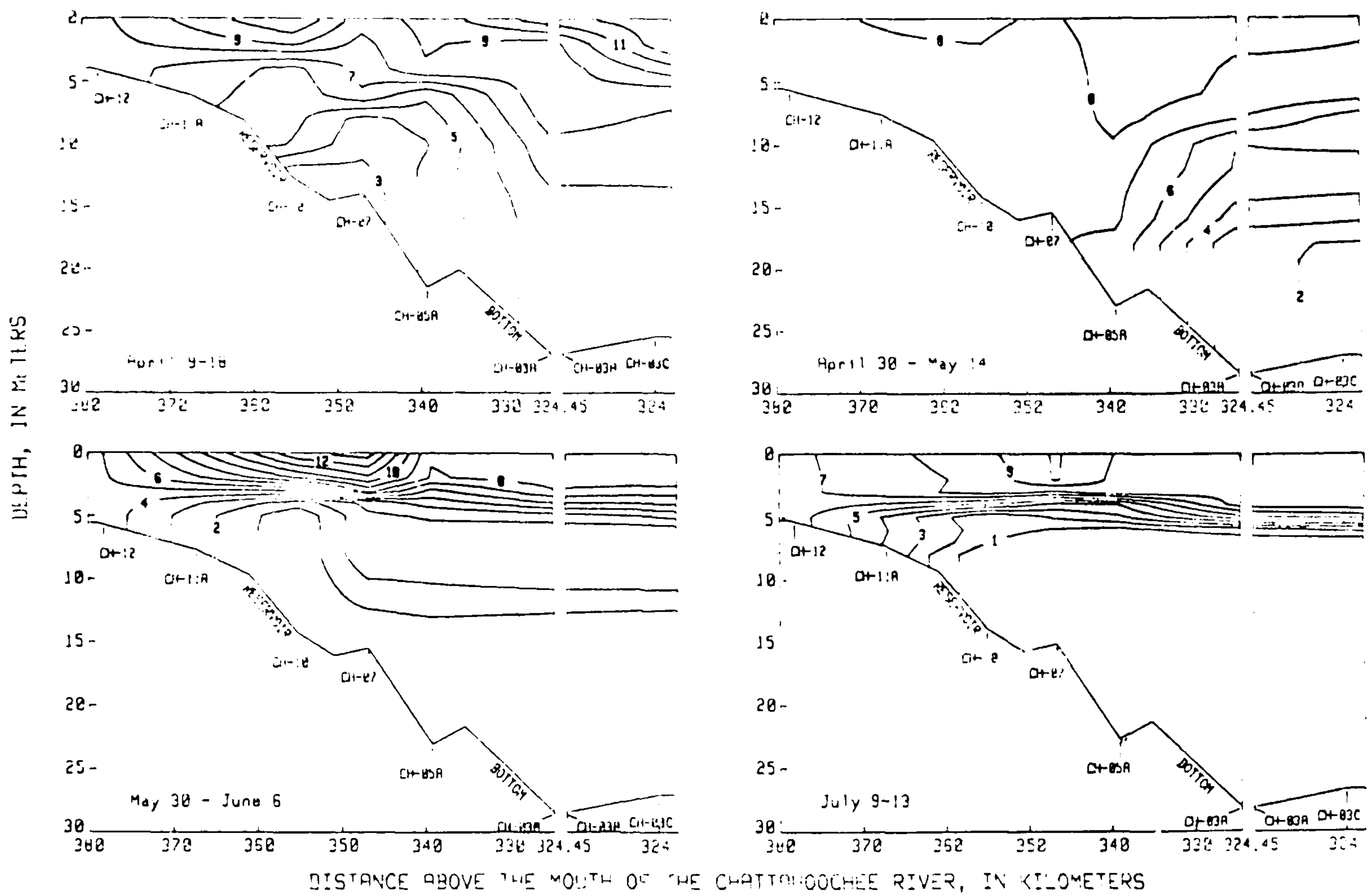


EXPLANATION

--580-- LINE OF EQUAL OXIDATION-REDUCTION POTENTIAL - Interval 30 millivolts

CH-05A WATER SAMPLING STATION

Oxidation-reduction potential, September-December 1979

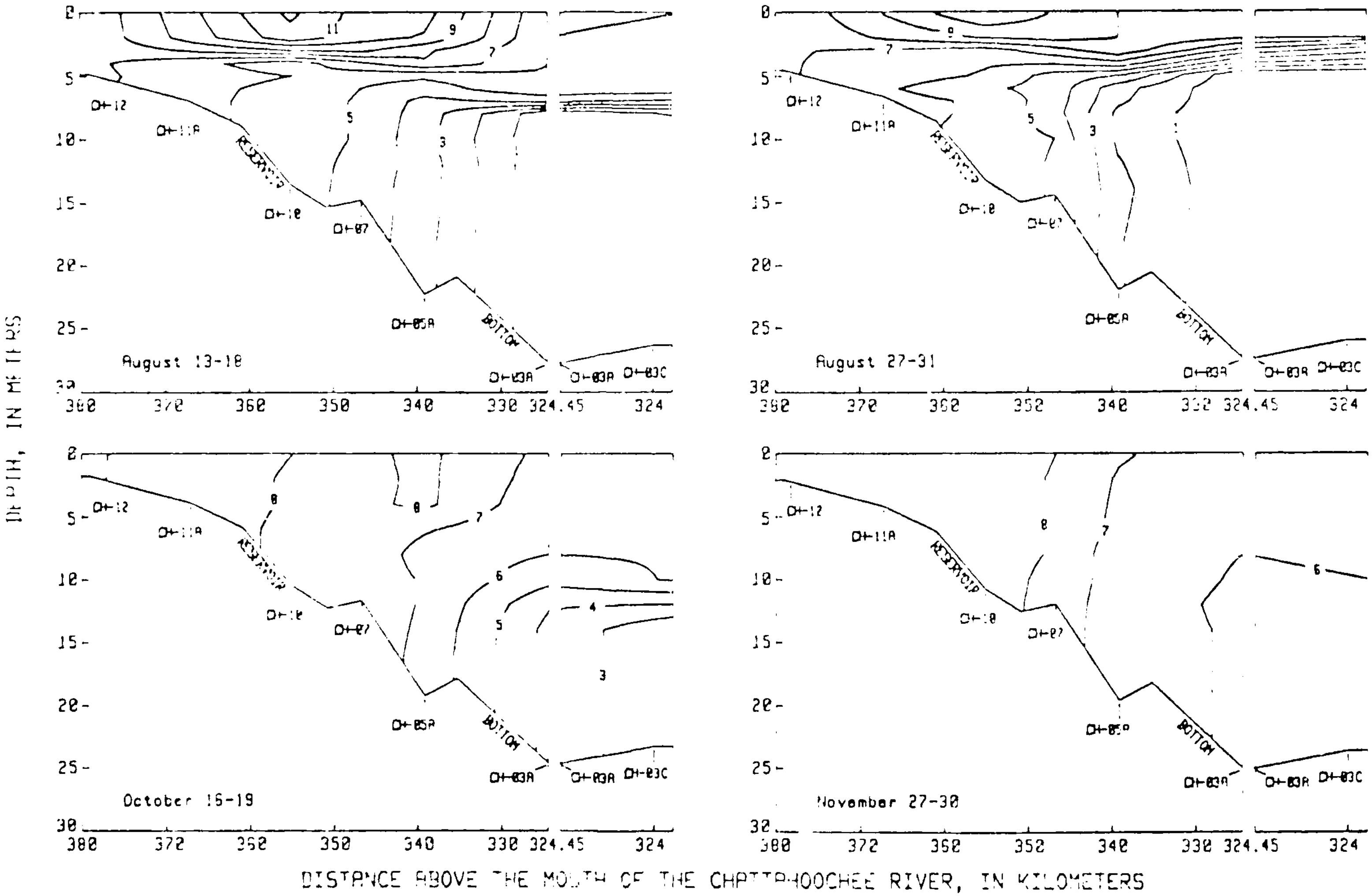


EXPLANATION

--10-- LINE OF EQUAL DISSOLVED-OXYGEN CONCENTRATION - Interval 1 milligram per liter

CH-25A WATER SAMPLING STATION

Dissolved-oxygen concentration, April-July 1978



EXPLANATION

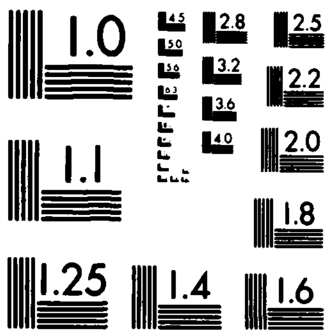
-10- LINE OF EQUAL DISSOLVED-OXYGEN CONCENTRATION - Interval 1 milligram per liter

CH-05A WATER SAMPLING STATION

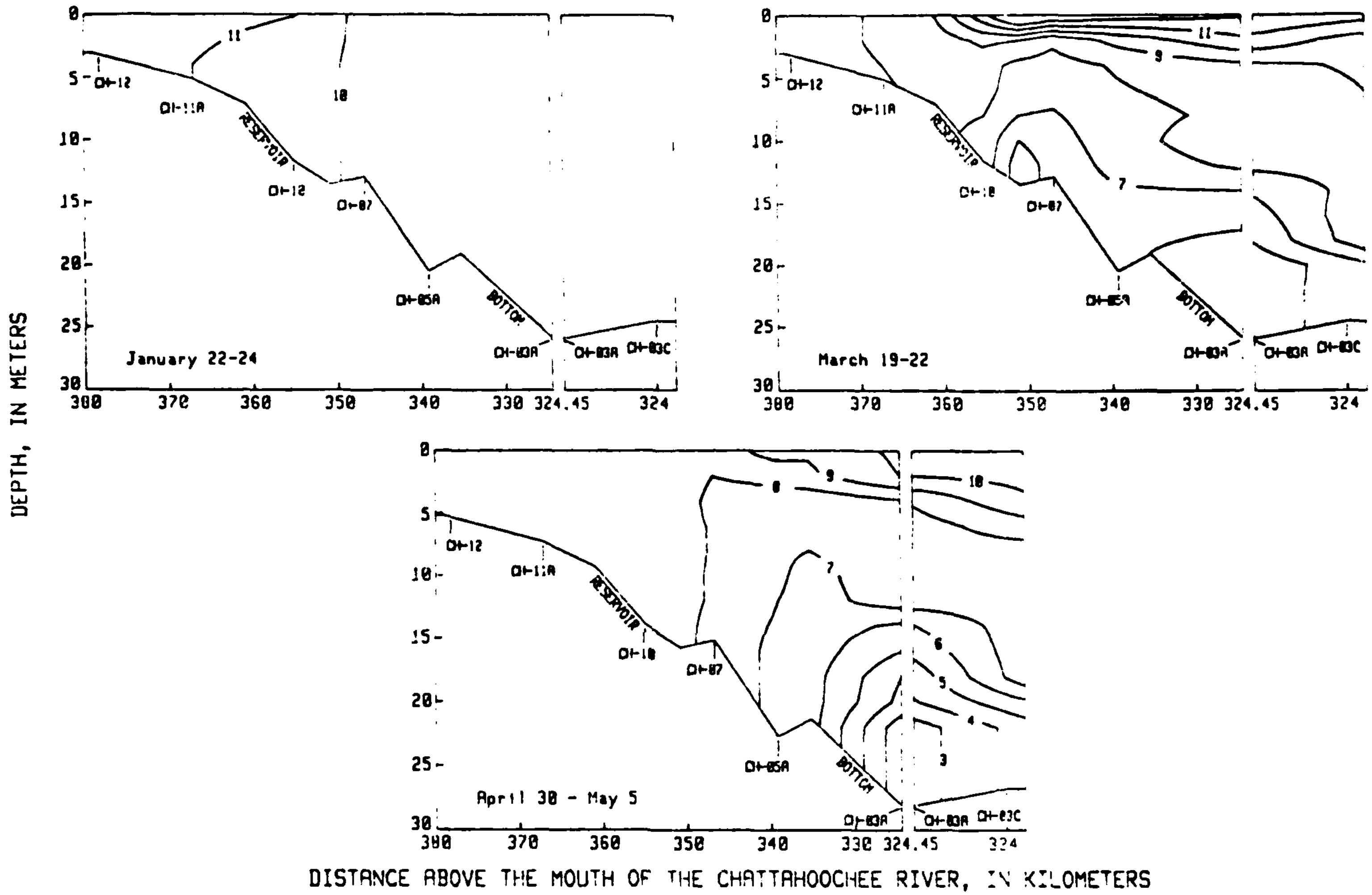
Dissolved-oxygen concentration August-November 1978

AD-A149 942 WATER QAALITY MANAGEMENT STUDIES WEST POINT LAKE 4/6
CHATTAHOOCHEE RIVER ALAB..(U) CORPS OF ENGINEERS MOBILE
AL MOBILE DISTRICT D B RADTKE ET AL. AUG 84

UNCLASSIFIED COESAM/PDEE-84/004 F/G 8/8 NL



MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

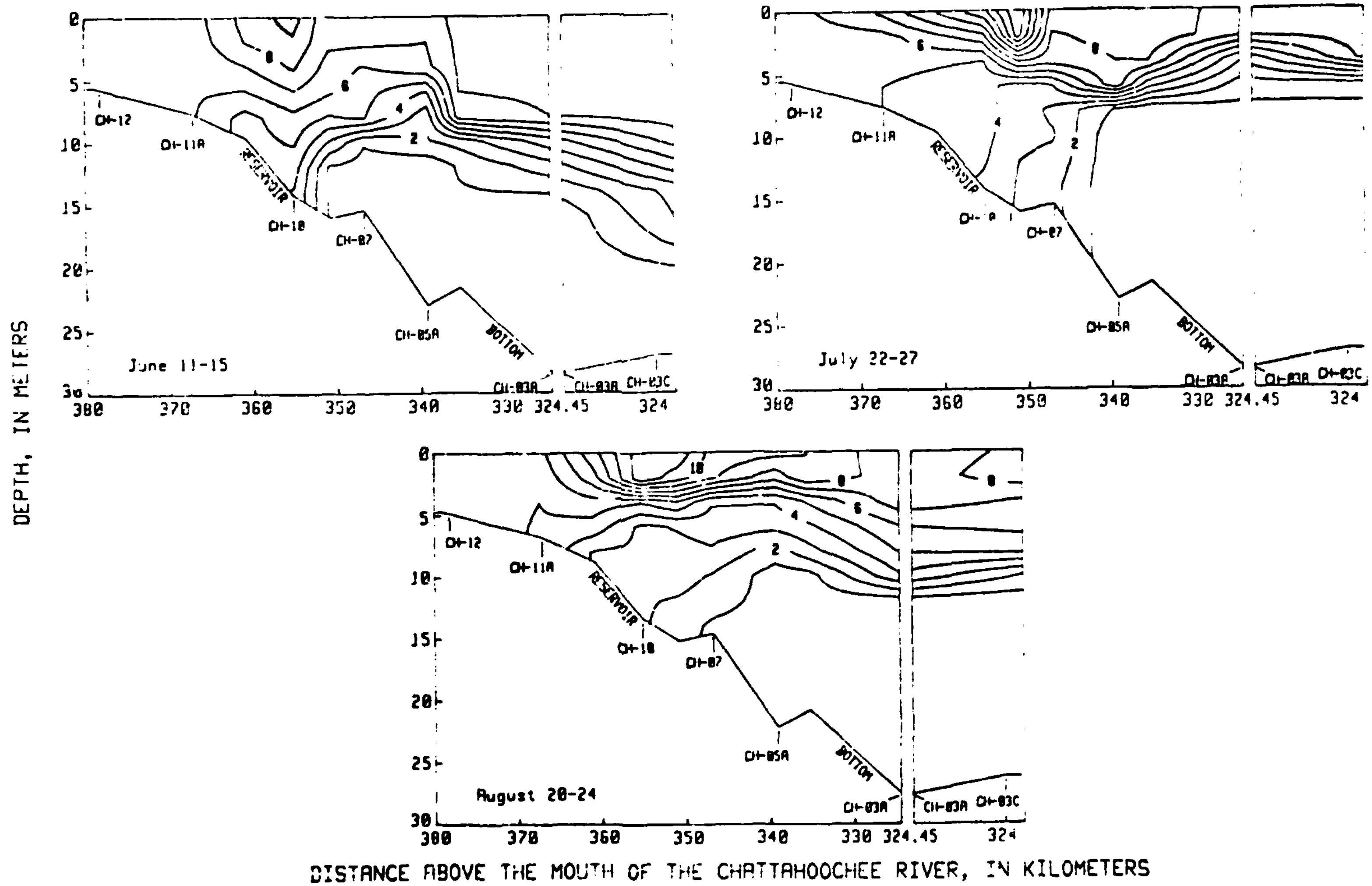


EXPLANATION

--10-- LINE OF EQUAL DISSOLVED-OXYGEN CONCENTRATION - Interval 1 milligram per liter

CH-05A WATER SAMPLING STATION

Dissolved-oxygen concentration, January-May 1979

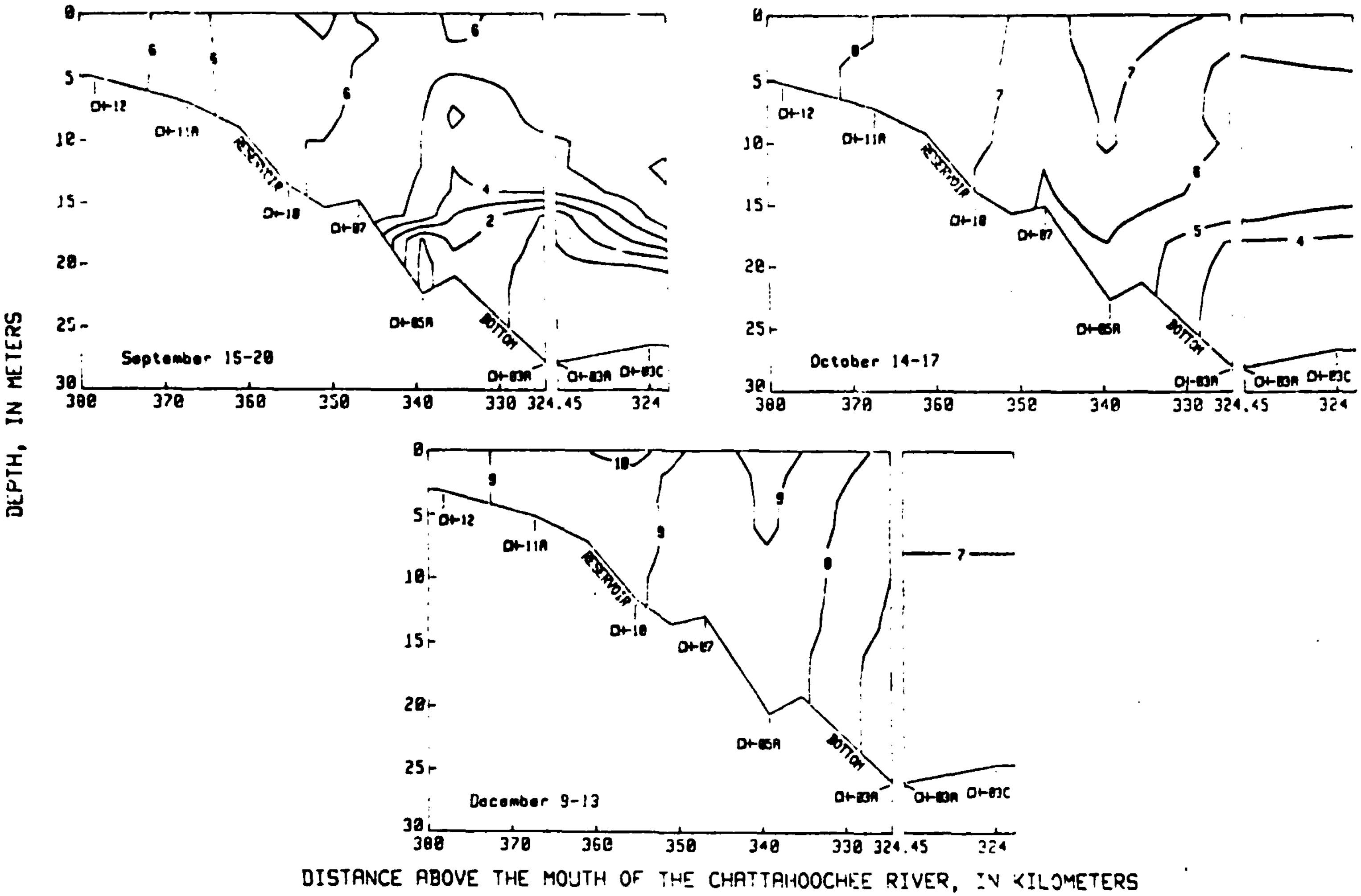


EXPLANATION

--10-- LINE OF EQUAL DISSOLVED OXYGEN CONCENTRATION - Interval 1 milligram per liter

CH-05A WATER SAMPLING STATION

Dissolved-oxygen concentration, June-August 1979

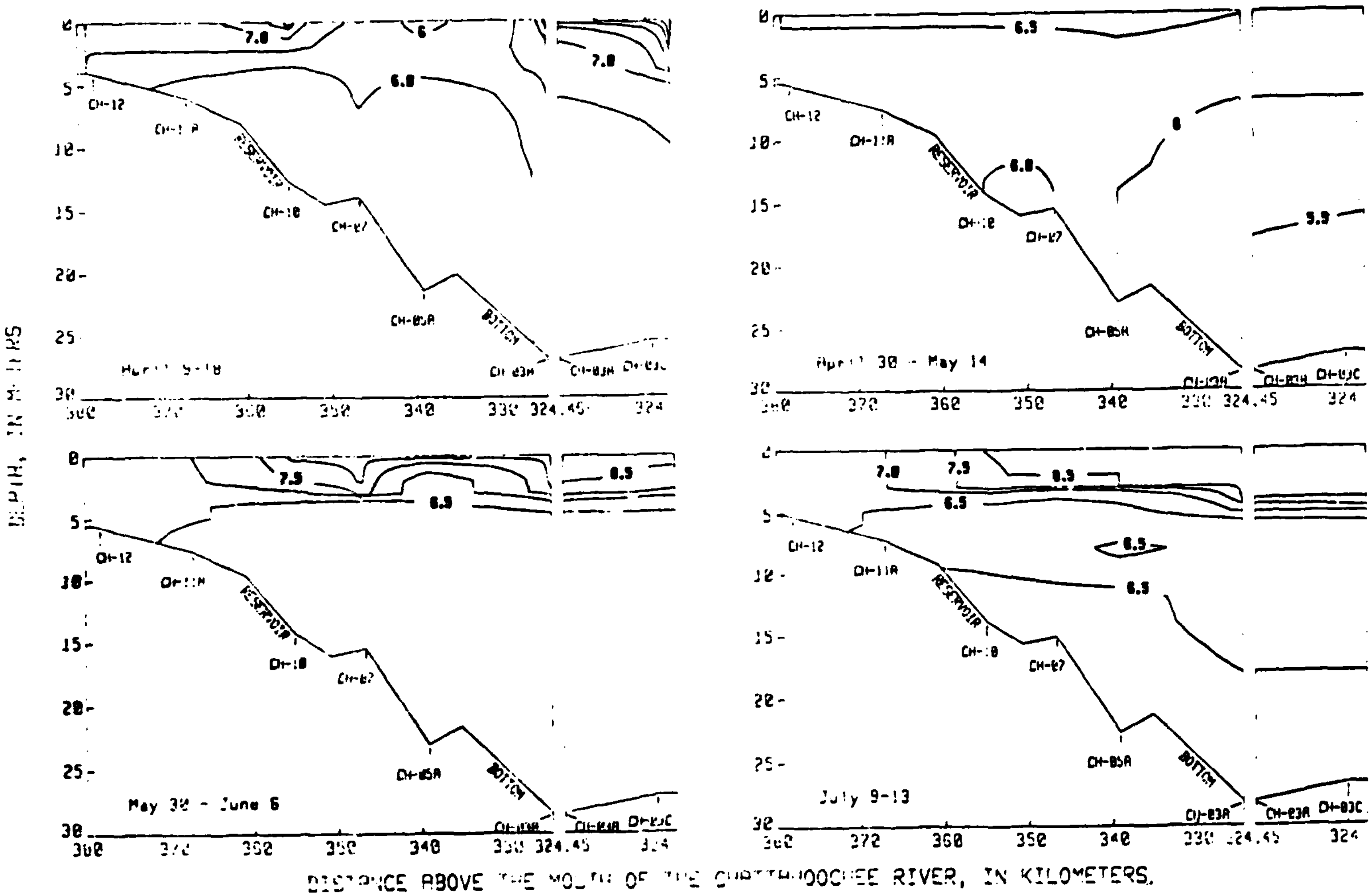


EXPLANATION

--10-- LINE OF EQUAL DISSOLVED-OXYGEN CONCENTRATION - Interval 1 milligram per liter

CH-05A WATER SAMPLING STATION

Dissolved-oxygen concentration, September-December 1979

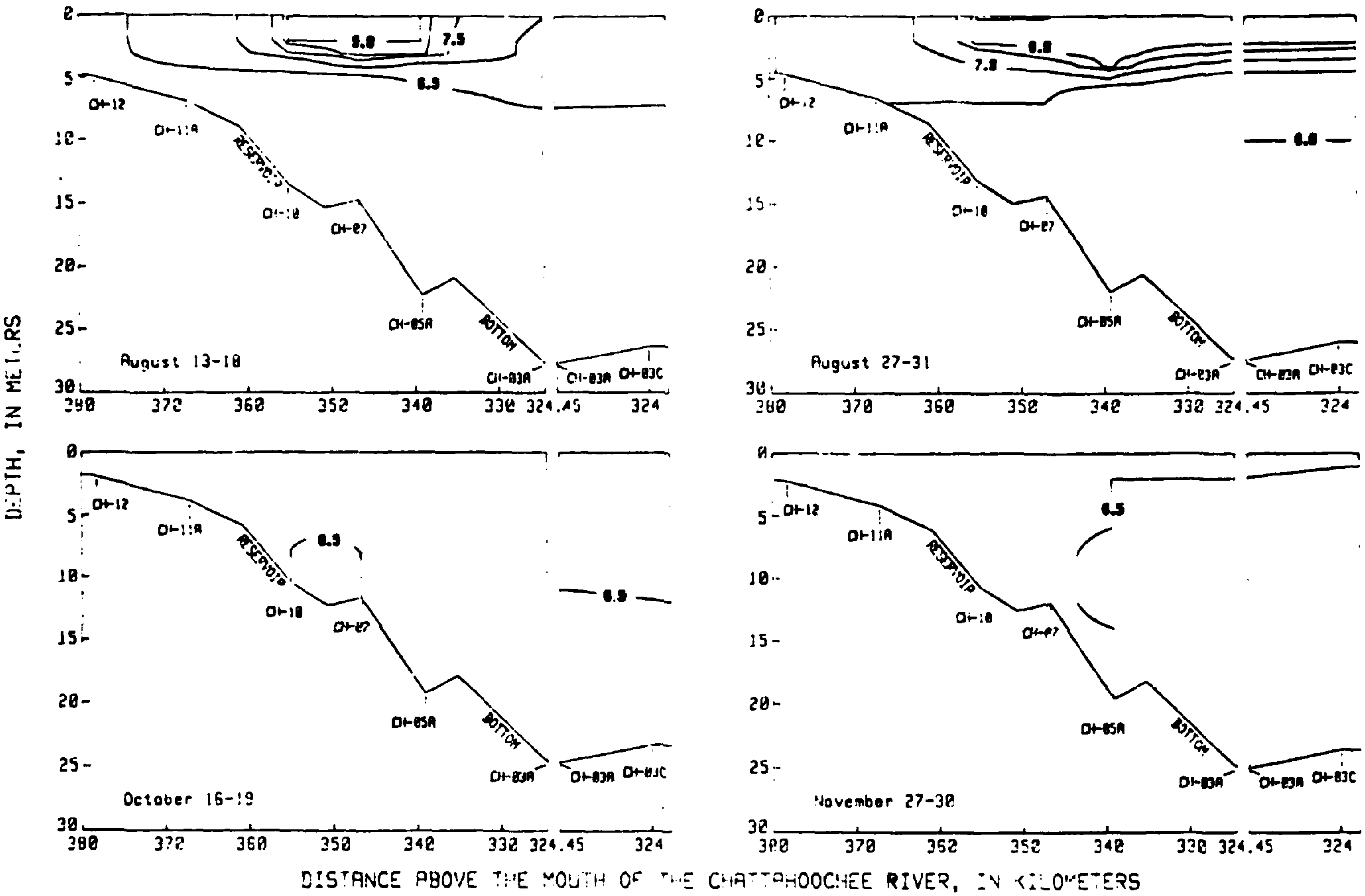


EXPLANATION

--6.5-- LINE OF EQUAL pH - Interval 0.5 pH unit

CH-05A WATER SAMPLING STATION

pH, April-July 1978

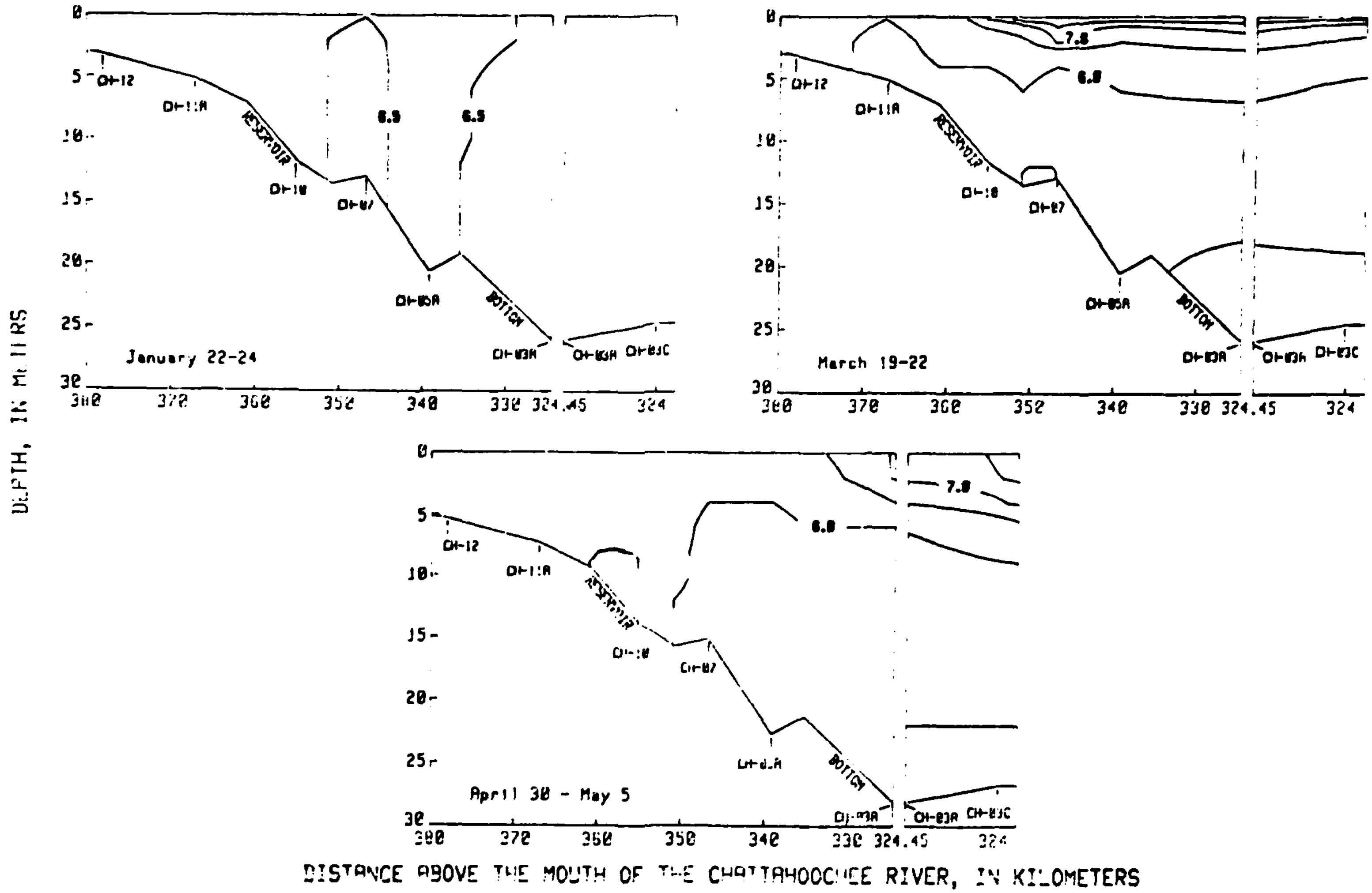


EXPLANATION

--6.5-- LINE OF EQUAL pH - Interval 0.5 pH unit

CH-25A WATER SAMPLING STATION

pH, August-November 1978

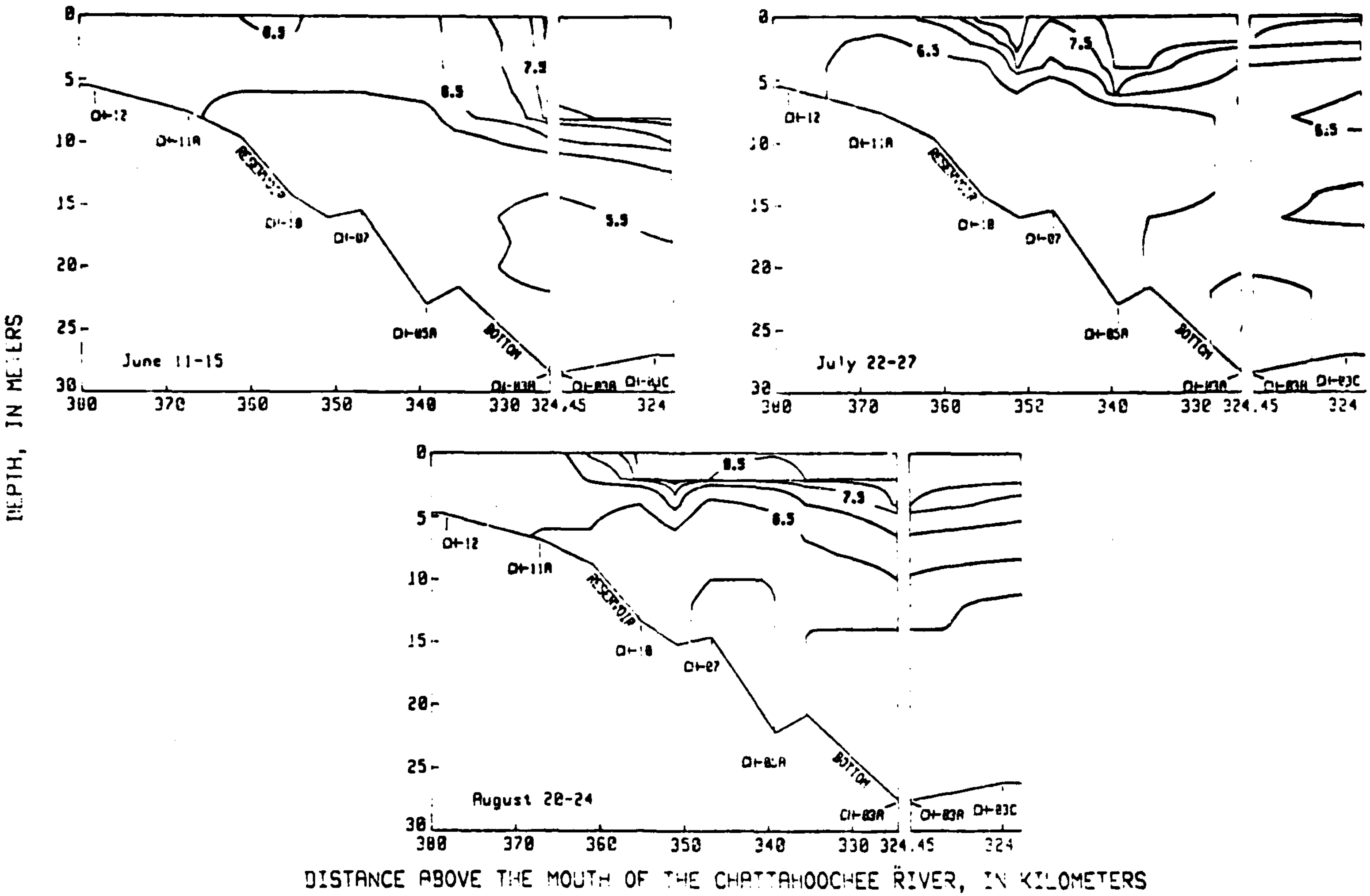


EXPLANATION

--6.5-- LINE OF EQUAL pH - Interval 0.5 pH unit

CH-05A WATER SAMPLING STATION

pH, January-May 1979

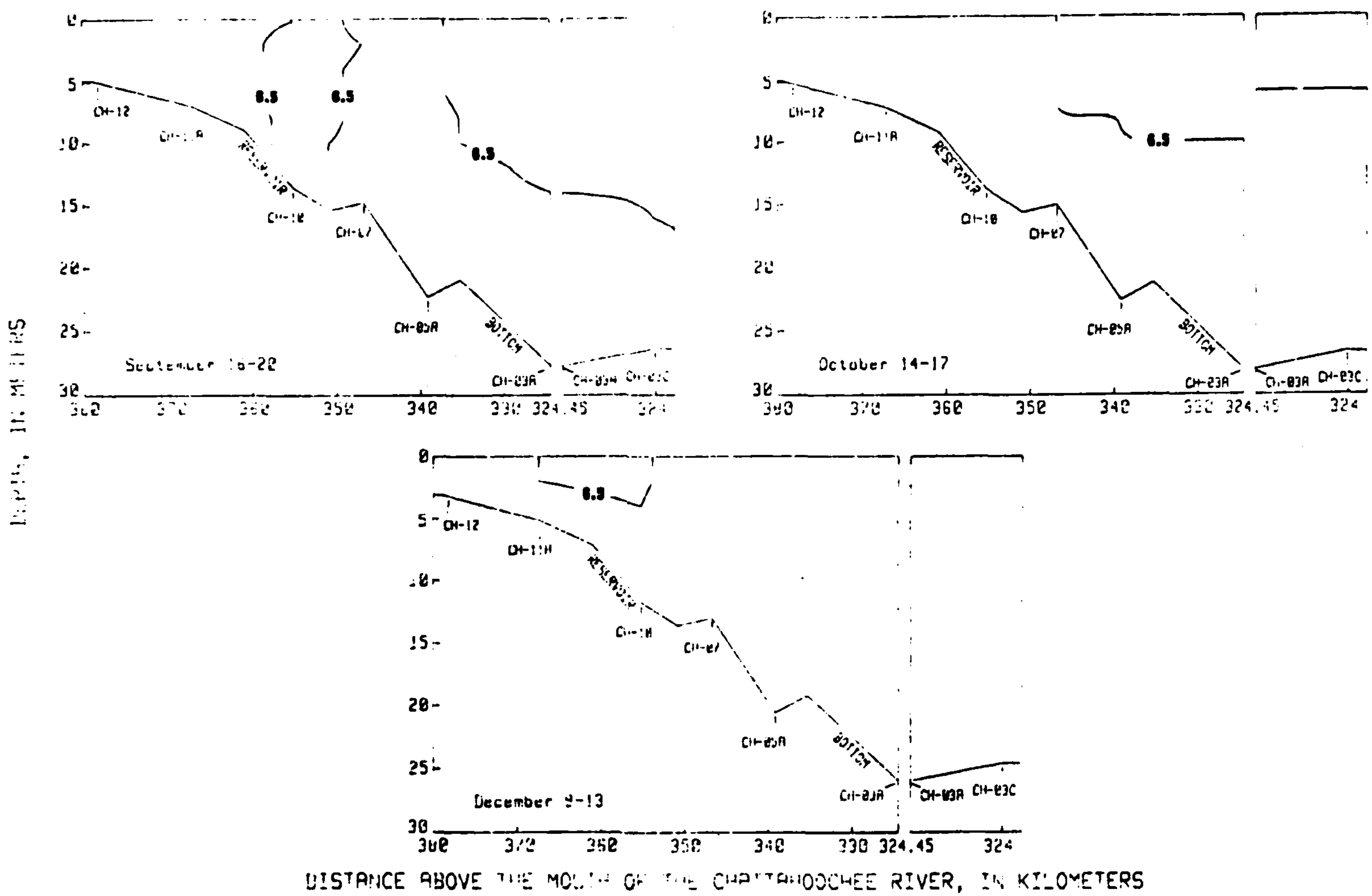


EXPLANATION

--6.5-- LINE OF EQUAL pH - Interval 0.5 pH unit

CH-03A WATER SAMPLING STATION

pH, June-August 1979



EXPLANATION

--6.5-- LINE OF EQUAL pH - Interval 0.5 pH unit

CH-05A WATER SAMPLING STATION

pH, September-December 1979

APPENDIX C-4

Physical measurements and chemical concentrations in West Point Reservoir and the Chattahoochee River below West Point Dam, April 1978-December 1979

[Turbidity; residue, filterable, total; residue, nonfilterable, total; color; alkalinity; carbon dioxide; bicarbonate; sulfate, dissolved; and sulfide, total]

CH-12 (02338500) Chattahoochee River at U.S. Highway 27, at Franklin, Ga., 1978 and 1979

DATE	SAM-PLING DEPTH (M)	TUR-BID-ITY (NTU)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	COLOR (PLAT-INUM COBALT UNITS)	ALKA-LINITY (MG/L AS CACO3)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)	BICAR-BONATE (MG/L AS HCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	SULFIDE TOTAL (MG/L AS S)
APR , 1978										
18...	1.0	15	34	57	20	13	6.4	16	6.9	.0
MAY										
08...	1.0	30	43	54	40	17	11	21	8.4	.0
JUN										
06...	1.0	10	6	61	40	16	6.4	20	9.8	.0
JUL										
13...	1.0	7.0	14	62	2	16	6.4	20	9.9	.0
AUG										
17...	1.0	40	63	50	30	11	8.9	14	7.2	.0
31...	1.0	25	51	44	30	11	6.6	13	5.6	.0
OCT										
19...	1.0	10	31	41	--	16	7.6	19	6.5	.0
NOV										
30...	1.0	12	14	58	--	11	3.3	13	7.3	.0
JAN , 1979										
24...	1.0	65	90	44	--	8	2.5	10	8.8	.0
MAR										
22...	1.0	20	19	59	5	17	17	--	8.1	.0
MAY										
03...	1.0	20	42	38	20	12	15	--	2.9	.0
JUN										
13...	1.0	30	44	52	15	11	11	--	5.1	.0
JUL										
26...	1.0	30	45	62	20	20	6.2	--	9.8	.0
AUG										
23...	1.0	20	52	50	15	16	7.8	--	6.7	.0
SEP										
20...	1.0	55	65	46	50	10	12	--	6.6	.0
OCT										
17...	1.0	20	50	42	10	11	11	--	4.3	.0
DEC										
13...	1.0	20	16	66	20	20	15	--	8.4	.0

CH-11A (02338570) Chattahoochee River above New River, near Corinth, Ga., 1979

DATE	TUR-BID-ITY (NTU)	ALKA-LINITY (MG/L AS CACO3)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)
MAR , 1979			
21...	10	18	35
21...	15	16	39
MAY			
03...	15	12	15
03...	15	11	14
03...	15	13	20
03...	15	13	20
JUN			
13...	10	15	15
13...	15	12	12
13...	15	16	20
JUL			
26...	25	16	4.9
26...	35	16	12
26...	35	16	16
26...	45	18	18
AUG			
23...	15	16	6.2
23...	15	18	8.8
23...	20	16	9.9
23...	25	16	9.9
SEP			
20...	30	11	17
20...	30	9	14
20...	35	10	16
20...	35	9	14
OCT			
17...	15	13	16
17...	15	13	10
DEC			
12...	10	11	6.8
12...	15	11	8.5

02339710 Chattahoochee River at State Highway 219, near LaGrange, Ga., 1978 and 1979

DATE	SAMPLING DEPTH (M)	TURBIDITY (NTU)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	COLOR (PLATINUM COBALT UNITS)	ALKALINITY (MG/L AS CACO3)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2)	BICARBONATE (MG/L AS HCO3)	SULFATE DISSOLVED (MG/L AS SO4)	SULFIDE TOTAL (MG/L AS S)
APR , 1978										
17...	.20	7.0	9	65	40	15	.1	18	6.4	.0
17...	2.0	9.0	7	52	20	16	5.1	20	7.0	.0
17...	4.0	10	14	51	20	9	22	11	7.1	.0
17...	8.0	15	9	44	50	15	12	18	6.7	.0
17...	11.0	25	25	50	50	20	11	24	7.1	.0
MAY										
02...	.20	75	51	42	60	41	13	50	4.3	.0
02...	2.0	80	57	44	60	16	16	20	5.0	.0
02...	4.0	85	58	44	60	16	16	20	4.3	.0
02...	8.0	90	101	44	40	10	15	12	4.2	.0
02...	12.0	90	77	42	40	16	30	14	4.5	.0
JUN										
05...	.20	6.0	4	47	40	18	.0	22	7.5	.0
05...	2.0	7.0	13	46	40	21	1.0	26	7.4	.0
05...	4.0	6.0	2	50	50	16	12	19	7.6	.0
05...	8.0	20	14	50	40	21	26	26	5.6	.0
05...	12.0	15	9	41	30	19	18	23	5.5	.0
JUL										
12...	.20	2.0	2	56	4	19	.1	23	11	.0
12...	2.0	2.0	0	64	8	15	.1	18	11	.0
12...	4.0	2.0	5	57	8	21	20	25	11	.0
12...	8.0	10	12	60	8	21	20	25	10	.0
12...	12.0	60	88	70	140	26	8.1	32	8.5	.0
AUG										
16...	.20	10	0	45	20	16	.0	19	6.8	.0
16...	2.0	6.0	0	46	10	15	.0	18	7.0	.0
16...	4.0	20	1	50	20	10	3.8	12	6.6	.0
16...	8.0	35	22	46	35	9	18	11	6.0	.0
16...	11.0	40	32	45	35	15	29	16	5.8	.0
29...	.20	7.0	6	91	20	28	.0	32	8.0	.0
29...	2.0	4.0	6	62	20	19	.1	23	7.1	.0
29...	4.0	6.0	7	54	10	17	3.4	21	6.5	.0
29...	8.0	10	8	12	20	10	7.6	12	6.5	.0
29...	11.0	30	36	22	20	11	11	14	6.5	.0
OCT										
17...	.20	14	36	48	--	16	7.6	19	6.8	.0
17...	2.0	14	36	48	--	11	6.6	13	7.2	.0
17...	4.0	15	29	42	--	14	8.6	17	6.9	.0
17...	8.0	14	34	50	--	11	6.6	13	6.8	.0
17...	10.0	14	20	49	--	16	9.6	19	7.0	.0
NOV										
29...	.20	15	13	55	--	16	6.4	20	6.7	.0
29...	9.0	15	15	50	--	15	[illegible]	18	6.3	.0
JAN , 1979										
24...	.20	60	51	44	--	14	5.4	17	7.7	.0
24...	11.0	65	41	42	--	12	6.0	15	7.7	.0
MAR										
21...	.20	15	12	46	5	20	3.9	--	5.8	.0
21...	11.0	15	26	50	5	20	99	--	6.8	.0
MAY										
03...	.20	10	30	40	20	15	17	--	4.0	.0
03...	2.0	15	13	40	20	12	17	--	4.0	.0
03...	4.0	15	16	40	30	12	19	--	4.0	.0
03...	8.0	15	12	40	25	12	24	--	4.0	.1
03...	12.0	20	33	42	20	11	22	--	4.2	.0
JUN										
13...	.20	6.0	4	46	5	9	2.8	--	4.9	.0
13...	2.0	5.0	4	46	0	16	9.9	--	4.4	.0
13...	4.0	5.0	4	48	0	12	9.4	--	4.4	.0
13...	8.0	10	14	45	5	16	40	--	4.3	.0
13...	12.0	15	14	44	5	13	27	--	4.2	.0
JUL										
26...	.20	3.0	8	48	5	17	.0	--	7.1	.1
26...	2.0	8.0	4	54	5	18	2.2	--	7.0	.0
26...	4.0	25	24	48	30	14	11	--	6.8	.0
26...	8.0	40	20	46	50	16	20	--	6.9	.1
26...	12.0	35	41	53	50	12	19	--	6.7	.0
AUG										
22...	.20	3.0	4	52	10	31	.0	--	7.7	.0
22...	2.0	4.0	2	51	20	27	.0	--	8.0	.0
22...	4.0	4.0	4	56	5	18	11	--	8.8	.0
22...	8.0	[illegible]	11	53	8	16	20	--	8.1	.0
22...	12.0	20	30	55	55	17	26	--	8.0	.0
SEP										
19...	.20	2.0	7	54	25	10	6.2	--	7.3	.0
19...	2.0	15	11	53	10	11	4.3	--	7.2	.0
19...	4.0	20	14	54	15	9	3.5	--	7.2	.0
19...	8.0	20	30	50	30	9	4.4	--	7.1	.0
19...	12.0	30	32	53	25	10	3.9	--	7.1	.0
OCT										
16...	.20	15	0	52	10	12	7.4	--	6.0	.0
16...	12.0	20	7	50	15	13	10	--	5.5	.0
DEC										
12...	.20	10	19	50	33	23	11	--	5.2	.0
12...	9.0	20	22	50	33	8	4.9	--	5.6	.0

CH-07 (02338720) Chattahoochee River (city of LaGrange intake) near LaGrange, Ga., 1978 and 1979

DATE	SAM-PLING DEPTH (M)	TUR-BID-ITY (NTU)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	COLOR (PLAT-INUM COBALT UNITS)	ALKA-LINITY (MG/L AS CACO3)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)	BICAR-BONATE (MG/L AS HCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	SULFIDE TOTAL (MG/L AS S)
APR , 1978										
12...	.20	6.0	12	51	10	15	11	18	6.7	.0
12...	2.0	4.0	13	52	10	19	23	23	6.7	.0
12...	4.0	6.0	7	50	20	16	20	20	6.6	.0
12...	8.0	7.0	9	48	30	19	40	23	6.8	.0
12...	13.0	7.0	20	48	20	11	51	16	4.3	.0
MAY										
04...	.20	50	31	36	--	15	5.7	18	5.5	.1
04...	2.0	50	20	38	--	13	10	16	5.6	.1
04...	4.0	60	31	40	--	8	10	10	9.4	.1
04...	8.0	70	22	39	--	14	27	17	7.9	.0
04...	13.0	75	68	39	--	16	32	20	6.8	.0
JUN										
01...	.20	2.0	2	56	20	18	.0	22	5.4	.0
01...	2.0	3.0	5	55	20	21	.1	25	4.9	.0
01...	4.0	4.0	6	54	20	21	20	25	5.1	.0
01...	8.0	4.0	0	50	20	15	23	18	4.3	.0
01...	12.0	2.0	9	48	30	17	27	21	5.4	.0
JUL										
11...	.20	2.0	2	58	8	16	.0	19	9.7	.0
11...	2.0	2.0	4	60	8	16	.0	19	9.7	.0
11...	4.0	2.0	5	59	8	17	11	21	9.9	.0
11...	8.0	6.0	10	59	8	22	22	27	7.4	.0
11...	12.0	70	109	66	65	20	7.7	24	8.0	.0
AUG										
17...	.20	1.0	0	71	15	18	.0	22	7.3	.0
17...	2.0	2.0	4	48	15	8	.0	10	7.2	.0
17...	4.0	3.0	5	43	15	20	1.9	24	7.1	.0
17...	8.0	17	16	49	30	10	12	12	6.7	.0
17...	12.0	30	12	46	30	11	17	13	6.8	.0
29...	.20	4.0	5	53	20	27	.0	33	7.0	.0
29...	2.0	3.0	6	59	20	17	.0	21	7.0	.0
29...	4.0	1.0	[illegible]	63	20	19	2.3	23	7.2	.0
29...	8.0	3.0	26	63	20	11	8.9	14	6.1	.0
29...	12.0	40	41	50	30	11	11	14	6.0	.0
OCT										
17...	.20	8.0	20	43	--	11	3.6	14	7.7	.0
17...	2.0	7.0	25	44	--	14	6.8	17	7.3	.0
17...	4.0	7.0	27	44	--	11	5.2	13	7.4	.0
17...	8.0	9.0	28	44	--	15	9.1	18	7.5	.0
17...	10.0	9.4	31	49	--	11	7.1	14	7.4	.0
NOV										
29...	.20	18	16	52	--	19	5.8	23	7.7	.0
29...	11.0	15	0	52	--	12	6.0	15	7.7	.0
JAN , 1979										
24...	.20	65	52	44	--	13	8.1	16	7.7	.0
24...	11.0	80	103	40	--	14	11	17	8.3	.0
MAR										
21...	.20	10	12	48	5	19	.3	--	7.0	.0
21...	12.0	25	28	52	30	16	99	--	7.2	.0
MAY										
02...	.20	50	14	44	30	18	16	--	4.2	.0
02...	2.0	40	18	38	30	12	24	--	4.3	.1
02...	4.0	30	20	41	30	12	24	--	4.6	.0
02...	8.0	40	19	40	25	9	22	--	4.4	.0
02...	14.0	90	42	38	30	10	31	--	4.7	.0
JUN										
12...	.20	10	1	53	5	8	7.9	--	5.1	.6
12...	2.0	10	3	44	10	16	20	--	5.1	.0
12...	4.0	15	5	44	10	12	19	--	5.1	.0
12...	9.0	25	16	42	45	14	55	--	5.2	.3
12...	17.0	20	23	43	45	8	34	--	4.8	.0
JUL										
26...	.20	3.0	10	50	50	21	1.3	--	7.2	.0
26...	2.0	3.0	6	50	5	16	2.0	--	7.2	.0
26...	4.0	3.0	9	49	5	18	4.4	--	7.2	.0
26...	8.0	20	32	44	20	11	17	--	7.1	.0
26...	12.0	25	26	44	30	8	16	--	6.9	.0
AUG										
22...	.20	3.0	3	53	10	20	.3	--	7.5	.0
22...	2.0	3.0	2	54	10	22	.1	--	8.1	.0
22...	4.0	2.0	3	52	10	18	14	--	7.8	.0
22...	8.0	8.0	4	54	30	16	31	--	7.9	.0
22...	12.0	15	11	55	15	18	44	--	8.4	.0
SEP										
19...	.20	5.0	8	54	5	9	8.8	--	8.7	.0
19...	2.0	4.0	8	52	8	11	6.0	--	8.7	.0
19...	4.0	6.0	9	53	5	15	12	--	8.2	.0
19...	8.0	8.0	12	54	5	10	7.8	--	8.0	.0
19...	12.0	9.0	20	50	5	12	12	--	7.2	.0
OCT										
16...	.20	9.0	13	50	10	12	7.4	--	6.5	.0
16...	12.0	20	15	54	6	15	12	--	6.5	.0
DEC										
11...	.20	7.0	40	44	30	15	18	--	6.8	.0
11...	12.0	15	35	48	30	13	20	--	7.4	.0

CH-05A (02339190) Chattahoochee River at State Highway 701, near Abbottsford, Ga., 1978 and 1979

DATE	SAMPLING DEPTH (M)	TURBIDITY (NTU)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	COLOR (PLATINUM COBALT UNITS)	ALKALINITY (MG/L AS CACO3)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2)	BICARBONATE (MG/L AS HCO3)	SULFATE DISSOLVED (MG/L AS SO4)	SULFIDE TOTAL (MG/L AS S)
APR., 1978										
12...	.20	3.0	8	48	10	16	40	20	6.0	.0
12...	2.0	3.0	6	47	5	19	29	23	5.2	.0
12...	4.0	3.0	6	44	5	14	17	17	5.9	.0
12...	8.0	4.0	5	44	20	15	12	18	5.4	.0
12...	16.0	15	14	46	30	14	68	17	4.7	.0
MAY										
03...	.20	10	2	45	30	16	6.4	20	6.0	.0
03...	2.0	10	8	31	30	15	9.1	18	12	.0
03...	4.0	10	8	45	20	7	4.0	8	5.5	.0
03...	8.0	10	4	--	30	6	5.6	7	11	.0
03...	16.0	10	3	44	20	7	13	8	6.2	.0
JUN										
01...	.20	2.0	7	49	20	19	.0	23	4.1	.0
01...	2.0	4.0	2	52	20	21	6.3	25	5.2	.0
01...	4.0	3.0	2	48	20	17	13	21	4.9	.0
01...	8.0	3.0	5	50	20	18	22	22	5.6	.0
01...	16.0	19	18	54	60	19	18	23	4.9	.0
JUL										
11...	.20	2.0	3	56	8	16	.1	20	7.6	.0
11...	2.0	2.0	7	54	8	20	.1	24	7.8	.0
11...	4.0	2.0	7	50	8	20	9.6	24	8.0	.0
11...	8.0	5.0	7	51	8	22	8.6	27	6.4	.0
11...	16.0	25	34	74	200	36	8.9	44	6.4	.0
AUG										
15...	.20	3.0	0	49	20	21	.0	24	7.7	.0
15...	2.0	3.0	6	50	20	24	.0	27	7.7	.0
15...	4.0	3.0	0	50	20	14	3.4	17	7.6	.0
15...	8.0	8.0	1	46	30	15	23	18	7.3	.0
15...	16.0	45	19	46	--	11	21	13	7.1	.0
30...	.20	5.0	3	53	25	17	.0	19	6.9	.0
30...	2.0	5.0	2	48	30	33	.1	36	6.9	.0
30...	4.0	2.0	0	53	20	25	.2	31	7.0	.0
30...	8.0	8.0	3	48	20	13	20	16	6.7	.0
30...	16.0	8.0	14	47	45	13	20	16	6.3	.0
OCT										
16...	.20	1.0	4	50	--	11	2.8	14	6.5	.0
16...	2.0	1.0	0	51	--	19	5.8	23	6.3	.0
16...	4.0	2.0	0	49	--	8	2.5	10	6.4	.0
16...	8.0	6.0	7	42	--	17	8.4	21	6.2	.0
16...	16.0	13	10	52	--	11	8.9	14	8.0	.0
NOV										
28...	.20	5.0	10	50	--	16	7.6	19	6.7	.0
28...	16.0	15	22	56	--	17	11	21	7.6	.0
JAN., 1979										
23...	.20	15	17	57	--	16	3.8	19	9.5	.0
23...	14.0	15	3	55	--	18	5.6	22	9.8	.0
MAR										
20...	.20	20	12	2	5	12	.2	--	7.9	.0
20...	15.0	40	35	49	30	12	59	--	7.3	.0
MAY										
01...	.20	30	20	36	60	7	4.3	--	3.8	.0
01...	2.0	35	25	37	70	16	20	--	3.9	.0
01...	4.0	30	30	34	65	8	16	--	3.9	.0
01...	8.0	30	28	36	70	11	34	--	3.9	.0
01...	16.0	40	37	34	80	8	25	--	3.9	.0
JUN										
12...	.20	10	6	48	10	14	14	--	5.6	.0
12...	2.0	10	9	45	10	17	17	--	5.6	.7
12...	4.0	10	5	44	10	17	17	--	5.4	.6
12...	8.0	15	14	44	45	15	47	--	5.8	.3
12...	16.0	15	12	20	45	12	59	--	4.1	.0
JUL										
25...	.20	2.0	9	51	5	21	.1	--	7.5	.0
25...	2.0	2.0	9	48	5	21	.2	--	7.3	.0
25...	4.0	2.0	5	54	5	16	.3	--	7.3	.0
25...	8.0	3.0	4	58	5	16	20	--	7.6	.0
25...	16.0	15	20	57	15	18	22	--	5.5	.0
AUG										
22...	.20	2.0	6	52	10	22	.1	--	7.4	.0
22...	2.0	2.0	0	58	10	16	.2	--	7.5	.0
22...	4.0	2.0	0	57	5	21	18	--	7.2	.0
22...	8.0	3.0	1	53	5	21	33	--	6.9	.0
22...	16.0	15	10	52	30	19	37	--	5.5	.0
SEP										
18...	.20	5.0	3	46	2	9	7.0	--	7.5	.0
18...	2.0	8.0	28	44	5	11	8.5	--	7.2	.0
18...	4.0	7.0	8	44	5	12	9.3	--	7.2	.0
18...	8.0	6.0	8	47	5	8	7.8	--	7.0	.0
18...	16.0	20	23	43	5	11	11	--	7.2	.0
OCT										
16...	.20	5.0	0	50	10	15	5.8	--	5.6	.0
16...	16.0	20	8	54	10	8	7.8	--	5.8	.0
DEC										
13...	.20	7.0	5	51	20	11	8.5	--	5.7	.0
13...	16.0	20	12	52	20	21	20	--	5.6	.0

CH-UJC (02339300) Chattahoochee River below coffer dam, above West Point Dam, 1978 and 1979

DATE	SAMPLING DEPTH (M)	TURBIDITY (NTU)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	COLOR (PLATINUM COBALT UNITS)	ALKALINITY (MG/L AS CACO3)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2)	BICARBONATE (MG/L AS HCO3)	SULFATE DISSOLVED (MG/L AS SO4)	SULFIDE TOTAL (MG/L AS S)
APR., 1978										
10...	.20	3.0	2	40	15	28	.0	14	6.3	.0
10...	2.0	3.0	1	38	20	26	.0	13	6.3	.0
10...	4.0	3.0	1	22	10	11	.1	14	6.3	.0
10...	8.0	4.0	2	40	15	9	4.4	11	6.3	.0
10...	16.0	15	5	42	30	16	15	19	6.1	.0
MAY										
14...	.20	6.0	2	49	10	15	4.1	18	5.6	.0
14...	2.0	8.0	1	46	20	16	16	20	5.2	.0
14...	4.0	8.0	1	46	20	14	22	17	5.7	.0
14...	8.0	4.0	1	48	20	19	46	21	5.8	.1
14...	16.0	15	3	46	50	14	86	17	5.3	.0
31...	.20	2.0	0	52	20	21	.1	25	4.9	.0
31...	2.0	3.0	10	50	20	17	.1	21	4.7	.0
31...	4.0	3.0	8	50	20	16	6.4	20	5.2	.0
31...	8.0	3.0	6	46	30	19	23	23	5.3	.0
31...	16.0	6.0	5	52	28	21	40	25	4.6	.0
JUL										
10...	.20	1.0	2	50	2	13	.0	16	5.8	.0
10...	2.0	1.0	20	52	10	16	.0	19	5.6	.0
10...	4.0	3.0	9	52	2	19	.0	23	5.6	.0
10...	8.0	2.0	9	52	9	19	23	23	5.9	.0
10...	16.0	6.0	11	57	8	8	6.4	10	4.3	.0
AUG										
14...	.20	2.0	0	50	5	14	3.4	17	7.3	.0
14...	2.0	1.0	0	49	30	16	3.8	19	7.3	.0
14...	4.0	1.0	3	49	5	18	5.6	22	7.3	.0
14...	8.0	1.0	0	46	30	21	25	25	7.1	.0
14...	16.0	5.0	0	61	30	27	42	33	5.9	.0
30...	.20	5.0	2	54	30	17	.2	21	7.2	.0
30...	2.0	5.0	2	71	20	23	.2	28	7.1	.0
30...	4.0	4.0	1	61	20	15	4.4	18	7.2	.0
30...	8.0	4.0	4	53	45	8	13	10	7.3	.0
30...	16.0	15	5	65	45	11	22	14	6.4	.0
OCT										
16...	.20	2.0	25	50	--	21	6.3	25	7.1	.0
16...	2.0	2.0	19	52	--	16	6.4	20	7.1	.0
16...	4.0	2.0	0	48	--	21	8.0	25	6.9	.0
16...	8.0	2.0	0	48	--	15	5.7	18	7.0	.0
16...	16.0	3.0	0	49	--	17	17	21	7.0	.0
NOV										
28...	.20	5.0	7	47	--	14	6.8	17	6.0	.0
28...	16.0	6.0	16	47	--	11	11	14	6.1	.0
JAN., 1979										
22...	.20	6.0	8	58	--	16	16	17	9.0	.0
22...	15.0	5.0	6	54	--	18	35	22	8.7	.0
MAR										
20...	.20	35	13	49	25	11	.7	--	6.1	.0
20...	19.0	40	17	48	50	12	59	--	6.6	.0
MAY										
01...	.20	30	23	36	80	8	.2	--	4.3	.0
01...	2.0	30	17	38	75	7	.3	--	4.7	.0
01...	4.0	35	17	37	65	9	1.4	--	4.2	.0
01...	8.0	30	15	36	60	9	1.4	--	3.7	.0
01...	16.0	25	13	37	50	7	22	--	3.6	.0
01...	20.0	25	10	42	70	7	34	--	3.7	.0
JUN										
14...	.20	2.0	5	35	3	16	.1	--	3.9	.0
14...	2.0	2.0	9	31	5	17	.1	--	3.8	.0
14...	4.0	2.0	6	34	8	16	.1	--	4.0	.0
14...	8.0	2.0	8	32	5	17	.2	--	4.0	.0
14...	16.0	3.0	7	38	2	11	56	--	4.6	.0
14...	20.0	6.0	14	37	5	8	62	--	4.3	.0
JUL										
24...	.20	2.0	27	19	5	11	.2	--	4.6	.0
24...	2.0	1.0	16	25	5	18	.9	--	4.5	.0
24...	4.0	1.0	1	44	5	14	3.4	--	4.6	.0
24...	8.0	1.0	1	51	5	17	13	--	5.2	.0
24...	16.0	6.0	6	54	50	16	1.6	--	5.0	.0
24...	20.0	7.0	2	54	100	17	5.3	--	5.0	.0
AUG										
21...	.20	2.0	0	52	5	16	.2	--	5.2	.0
21...	2.0	2.0	0	52	5	21	.2	--	3.1	.0
21...	4.0	2.0	1	48	5	17	1.7	--	5.9	.0
21...	8.0	2.0	0	50	5	21	10	--	5.4	.0
21...	16.0	7.0	10	58	25	25	34	--	5.6	.0
21...	20.0	6.0	9	58	75	26	32	--	5.4	.0
SEP										
17...	.20	3.0	0	54	15	13	5.1	--	6.7	.0
17...	2.0	3.0	0	54	8	18	7.0	--	6.5	.0
17...	4.0	4.0	0	54	15	16	6.2	--	6.8	.0
17...	8.0	4.0	0	53	10	20	7.8	--	6.5	.0
17...	16.0	20	16	54	15	14	6.9	--	5.9	.0
17...	20.0	20	7	56	10	15	23	--	6.0	.0
OCT										
15...	.20	2.0	6	46	15	8	3.9	--	6.2	.0
15...	2.0	2.0	6	42	15	9	4.9	--	6.5	.0
15...	4.0	2.0	8	49	5	14	8.6	--	6.2	.0
15...	8.0	2.0	8	46	5	13	10	--	6.5	.0
15...	16.0	5.0	13	48	10	12	15	--	6.2	.0
15...	20.0	8.0	7	52	15	8	12	--	6.1	.0
DEC										
10...	.20	2.0	31	60	10	23	11	--	7.0	.0
10...	16.0	3.0	30	90	10	23	45	--	6.9	.0

CH-08 (02339020) Yellowjacket Creek at Cameron Mill Road, near LaGrange, Ga., 1978 and 1979

DATE	SAM-PLING DEPTH (M)	TUR-BID-ITY (NTU)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	COLOR (PLAT-INUM COBALT UNITS)	ALKA-LINITY (MG/L AS CACO3)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)	BICAR-BONATE (MG/L AS HCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	SULFIDE TOTAL (MG/L AS S)
APR., 1978										
17...	.20	6.0	8	41	20	22	.1	15	3.9	.0
17...	2.0	7.0	8	39	30	26	.1	24	4.3	.0
17...	4.0	3.0	5	47	20	13	13	16	4.9	.0
17...	8.0	4.0	2	33	20	13	16	16	2.3	.0
MAY										
12...	.20	5.0	4	46	30	21	.8	25	4.2	.0
12...	2.0	5.0	7	47	30	18	2.0	22	4.0	.0
12...	4.0	5.0	6	47	30	19	7.3	23	5.3	.0
12...	8.0	10	8	52	30	18	11	22	7.0	.0
JUN										
15...	.20	4.0	0	44	30	19	.0	23	5.3	.0
15...	2.0	5.0	4	47	30	17	.0	21	5.1	.0
15...	4.0	4.0	2	42	20	13	5.1	16	4.9	.0
15...	8.0	15	5	44	70	16	20	20	2.8	.0
JUL										
12...	.20	2.0	1	47	8	16	.0	20	8.1	.0
12...	2.0	2.0	4	48	8	21	.1	25	11	.0
12...	4.0	2.0	4	46	8	22	.4	27	8.6	.0
12...	8.0	5.0	0	49	40	27	21	33	5.8	.0
12...	13.0	30	36	79	230	39	15	48	6.9	.0
AUG										
15...	.20	3.0	5	53	10	22	.2	27	5.1	.0
15...	2.0	3.0	1	49	20	22	2.2	27	5.3	.0
15...	4.0	2.0	0	44	20	16	25	20	6.1	.0
15...	8.0	22	7	48	120	11	22	14	7.6	.0
15...	12.0	50	34	102	400	52	32	63	5.6	.0
28...	.20	2.0	8	96	20	20	.0	24	6.0	.0
28...	2.0	2.0	9	91	20	17	.0	21	6.4	.0
28...	4.0	1.0	2	48	10	22	17	27	5.4	.0
28...	8.0	1.0	5	109	20	17	21	.1	6.1	.0
28...	13.0	40	20	85	400	49	15	60	9.5	.0
OCT										
17...	.20	4.0	27	47	--	20	7.7	24	6.4	.0
17...	2.0	4.0	29	52	--	13	8.1	16	6.4	.0
17...	4.0	4.0	24	50	--	12	7.6	15	6.8	.0
17...	6.0	6.0	23	54	--	17	11	21	6.7	.0
NOV										
29...	.20	6.0	14	48	--	13	6.4	16	5.9	.0
29...	7.0	6.0	14	45	--	17	13	21	5.9	.0
JAN., 1979										
23...	.20	8.0	16	48	--	17	3.4	21	4.6	.0
23...	11.0	20	5	48	--	18	4.4	22	3.6	.0
MAR										
21...	.20	25	25	37	30	13	18	--	4.1	.0
21...	11.0	45	30	42	80	15	180	--	2.2	.0
MAY										
01...	.20	35	20	38	100	10	2.3	--	2.5	.0
01...	2.0	35	19	39	100	10	4.9	--	2.6	.0
01...	4.0	25	15	38	60	7	11	--	3.0	.0
01...	8.0	30	13	39	50	9	35	--	4.0	.0
01...	12.0	30	25	45	70	15	59	--	3.5	.0
JUN										
12...	.20	4.0	3	38	5	17	.0	--	3.6	.4
12...	2.0	5.0	4	38	5	20	.0	--	3.1	.5
12...	4.0	6.0	6	38	5	15	.0	--	4.2	.7
12...	8.0	20	9	52	60	14	44	--	5.8	.0
12...	12.0	15	19	59	50	27	33	--	4.0	.0
JUL										
25...	.20	2.0	0	50	5	21	.1	--	5.2	.0
25...	2.0	2.0	1	45	5	17	.1	--	5.1	.0
25...	4.0	2.0	2	50	5	16	10	--	6.0	.0
25...	8.0	3.0	7	43	5	15	29	--	4.7	.0
25...	12.0	25	22	82	200	23	14	--	4.1	.0
AUG										
22...	.20	2.0	0	48	5	16	.1	--	5.1	.0
22...	2.0	2.0	8	40	5	21	.3	--	5.0	.0
22...	4.0	2.0	0	48	5	20	7.8	--	5.5	.0
22...	8.0	7.0	4	59	50	26	32	--	4.9	.0
22...	12.0	40	41	64	300	46	28	--	4.4	.0
SEP										
19...	.20	2.0	0	50	8	12	23	--	6.1	.0
19...	2.0	3.0	0	50	5	12	15	--	6.3	.0
19...	4.0	3.0	10	46	5	16	20	--	6.3	.0
19...	8.0	5.0	4	52	5	13	16	--	6.3	.0
19...	12.0	25	[illegible]	87	150	29	28	--	5.5	.0
OCT										
16...	.20	4.0	10	50	10	8	4.9	--	5.2	.0
16...	12.0	20	18	50	20	12	12	--	6.1	.0
DEC										
12...	.20	5.0	15	52	10	25	--	--	2.0	.0
12...	11.0	9.0	19	52	30	10	--	--	5.2	.0

CH-04 (02339350) Wehadkee Creek at State Highway 244, near Abbottsford, Ga., 1978 and 1979

DATE	SAMPLING DEPTH (M)	TURBIDITY (NTU)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	COLOR (PLATINUM COBALT UNITS)	ALKALINITY (MG/L AS CACO3)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2)	BICARBONATE (MG/L AS HCO3)	SULFATE DISSOLVED (MG/L AS SO4)	SULFIDE TOTAL (MG/L AS S)
NOV , 1978										
28...	.20	8.0	19	64	--	19	7.3	23	3.0	--
28...	4.0	8.0	17	53	--	16	9.6	19	2.4	--

DATE	TURBIDITY (NTU)	ALKALINITY (MG/L AS CACO3)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2)
JAN , 1979			
23...	25	16	2.6
23...	25	15	3.0
MAR			
20...	35	12	9.8
20...	40	8	42
APR			
30...	15	7	2.9
30...	10	9	5.9
30...	15	7	11
30...	35	12	49
JUN			
14...	2.0	11	1.5
14...	2.0	12	1.2
14...	3.0	12	9.8
14...	8.0	16	34
JUL			
25...	2.0	12	.2
25...	2.0	14	.3
25...	5.0	21	1.4
25...	2.0	14	92
AUG			
21...	2.0	18	.6
21...	2.0	18	4.4
21...	2.0	17	21
21...	15	30	37
SEP			
18...	3.0	13	13
18...	3.0	15	15
18...	3.0	13	13
18...	6.0	12	12
OCT			
16...	3.0	12	12
16...	7.0	15	19
DEC			
11...	5.0	9	8.8
11...	8.0	27	33

CH-13 (02339362) Wehadkee Creek at State Highway 230, near Abbottsford, Ga., 1978 and 1979

DATE	SAMPLING DEPTH (M)	TURBIDITY (NTU)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	COLOR (PLATINUM COBALT UNITS)	ALKALINITY (MG/L AS CACO3)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2)	BICARBONATE (MG/L AS HCO3)	SULFATE DISSOLVED (MG/L AS SO4)	SULFIDE TOTAL (MG/L AS S)
APR., 1978										
11...	1.0	6.0	6	25	10	6	.0	7	5.0	.0
11...	16.0	25	8	37	50	16	12	19	4.2	.0
MAY										
04...	.20	4.1	2	46	20	16	4.8	19	6.4	.0
04...	2.0	4.0	1	39	20	18	8.6	22	5.6	.2
04...	4.0	3.0	1	41	10	13	8.1	16	5.7	.1
04...	8.0	5.0	2	43	10	17	17	21	10	.2
04...	16.0	20	15	40	40	17	106	21	3.9	.0
31...	.20	2.0	7	44	20	19	.0	21	5.2	.0
31...	2.0	2.0	0	48	20	21	.0	23	5.9	.0
31...	4.0	3.0	0	50	20	19	15	23	4.0	.0
31...	8.0	5.0	7	50	20	16	25	20	4.3	.0
31...	16.0	7.0	7	52	20	19	18	23	2.8	.0
JUL										
10...	.20	4.0	2	55	8	21	.0	25	5.7	.0
10...	2.0	2.0	0	50	8	21	.0	25	5.7	.0
10...	4.0	1.0	0	53	8	15	1.0	18	6.6	.0
10...	8.0	5.0	3	49	8	21	21	26	5.8	.0
10...	16.0	4.0	3	60	95	24	12	29	4.3	.0
AUG										
16...	.20	5.0	0	49	15	19	.2	23	7.3	.0
16...	2.0	4.0	0	52	15	20	.2	24	7.3	.0
16...	4.0	3.0	1	46	10	11	1.3	13	6.9	.0
16...	8.0	3.0	0	50	10	18	18	22	7.8	.0
16...	16.0	30	9	50	25	27	26	33	6.9	.0
28...	.20	2.0	1	100	10	23	.1	28	6.6	.0
28...	2.0	1.0	0	46	10	20	.1	24	6.9	.0
28...	4.0	2.0	0	43	10	21	3.3	26	6.8	.0
28...	8.0	1.0	8	103	20	13	26	16	7.1	.0
28...	16.0	3.0	1	103	30	10	19	12	7.2	.0
OCT										
16...	.20	2.0	20	50	--	16	6.4	20	5.5	.0
16...	2.0	1.0	15	50	--	21	8.0	25	5.4	.0
16...	4.0	1.0	21	48	--	16	6.4	20	5.5	.0
16...	8.0	2.0	21	50	--	21	10	25	5.5	.0
16...	14.0	9.0	18	44	--	16	15	19	6.6	.0
NOV										
28...	.20	3.0	7	50	--	15	3.6	18	5.8	.0
28...	16.0	15	22	46	--	11	6.6	13	6.1	.0
JAN., 1979										
23...	.20	7.0	2	50	--	14	5.4	17	7.1	.0
23...	15.0	9.0	19	56	--	15	4.6	18	8.0	.0
MAR										
20...	.20	25	17	41	20	12	.2	--	4.9	.0
20...	13.0	20	12	44	45	12	94	--	4.5	.0
APR										
30...	.20	14	10	32	20	12	.1	--	3.2	.0
30...	2.0	15	11	36	40	9	7.5	--	3.3	.0
30...	4.0	20	15	37	30	11	14	--	4.1	.0
30...	8.0	20	16	34	25	8	16	--	4.0	.0
30...	16.0	26	32	38	50	15	93	--	3.5	.0
JUN										
14...	.20	3.0	3	41	0	18	.2	--	4.6	.0
14...	2.0	4.0	5	47	0	13	.1	--	4.3	.0
14...	4.0	6.0	8	40	0	14	.2	--	4.6	.0
14...	8.0	3.0	7	37	5	12	37	--	3.4	.0
14...	16.0	9.0	6	34	10	8	50	--	2.8	.0
JUL										
25...	.20	2.0	5	44	5	12	.1	--	5.5	.0
25...	2.0	2.0	0	45	5	21	.3	--	5.4	.0
25...	4.0	2.0	0	44	5	21	1.3	--	5.5	.0
25...	8.0	1.0	8	42	5	12	29	--	4.4	.0
25...	16.0	3.0	7	48	50	21	16	--	2.1	.0
AUG										
21...	.20	2.0	0	45	5	21	.2	--	5.5	.0
21...	2.0	2.0	4	52	5	16	.1	--	8.8	.0
21...	4.0	2.0	8	56	5	21	2.6	--	6.6	.0
21...	8.0	2.0	12	52	5	17	17	--	6.4	.0
21...	16.0	5.0	8	56	150	29	36	--	3.3	.0
SEP										
18...	.20	3.0	11	39	5	12	7.4	--	6.9	.0
18...	2.0	2.0	5	46	5	12	9.3	--	6.7	.0
18...	4.0	4.0	9	45	8	16	12	--	7.0	.0
18...	8.0	3.0	8	44	5	11	8.5	--	7.2	.0
18...	16.0	10	9	52	50	15	29	--	5.2	.0
OCT										
16...	.20	2.0	1	50	5	14	8.6	--	5.2	.0
16...	16.0	25	11	54	30	12	15	--	5.9	.0
DEC										
11...	.20	3.0	28	42	20	16	20	--	6.1	.0
11...	16.0	9.0	16	46	40	16	25	--	6.9	.0

CH-2.5B (02339- 2) Chattahoochee River below West Point Dam, 1978 and 1979

DATE	SAMPLING DEPTH (M)	TURBIDITY (NTU)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	COLOR (PLATINUM COBALT UNITS)	ALKALINITY (MG/L AS CACO3)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2)	BICARBONATE (MG/L AS HCO3)	SULFATE DISSOLVED (MG/L AS SO4)	SULFIDE TOTAL (MG/L AS S)
APR , 1978										
04...	.70	5.0	6	52	10	16	.3	20	5.7	.0
MAY										
01...	.70	25	31	44	30	14	--	17	6.6	.0
01...	1.0	7.0	4	51	30	17	21	21	6.2	.0
30...	.70	3.0	1	42	20	16	5.1	20	5.5	.0
30...	1.0	2.0	0	46	20	21	32	25	5.6	.0
JUL										
09...	.70	3.0	5	46	15	16	5.1	20	5.3	.0
10...	1.0	4.0	8	53	45	16	7.6	19	4.9	.0
AUG										
13...	.70	4.0	0	98	45	21	4.0	25	6.9	.0
14...	1.0	4.0	0	54	35	22	17	27	6.9	.0
27...	.70	5.0	14	46	30	20	7.7	24	7.1	.0
28...	1.0	3.0	0	101	20	15	7.2	18	7.1	.0
OCT										
18...	.70	1.0	2	46	--	15	5.7	18	6.1	.0
19...	1.0	2.0	3	46	--	18	8.8	22	6.1	.0
NOV										
27...	.70	8.0	5	62	--	11	8.3	13	6.6	.0
28...	1.0	6.0	14	46	--	15	1.8	18	6.0	.0
JAN , 1979										
22...	1.0	6.0	5	53	--	15	5.7	18	8.9	.0
MAR										
19...	1.0	35	17	47	70	10	7.8	--	6.4	.0
19...	.70	30	14	48	55	9	8.8	--	6.3	.0
APR										
30...	1.0	20	26	34	30	11	22	--	4.6	.0
MAY										
02...	.70	25	20	33	40	10	25	--	4.4	.1
JUN										
11...	.70	6.0	9	41	10	16	12	--	4.0	.0
11...	1.0	4.0	0	46	10	13	10	--	4.3	.0
JUL										
23...	.70	2.0	2	42	8	15	15	--	4.3	.0
23...	1.0	4.0	2	48	20	20	20	--	4.3	.0
AUG										
20...	.70	7.0	0	59	40	20	20	--	5.7	.0
20...	1.0	5.0	32	56	30	18	8.8	--	5.7	.0
SEP										
16...	.70	5.0	3	54	5	19	15	--	7.0	.0
17...	1.0	5.0	0	54	10	18	8.8	--	6.9	.0
OCT										
14...	.70	3.0	1	50	8	12	9.3	--	6.7	.0
15...	1.0	3.0	3	46	10	12	5.9	--	6.7	.0
DEC										
09...	.70	4.0	7	54	10	18	44	--	6.5	.0
10...	1.0	3.0	32	46	10	26	20	--	6.9	.0

DATE	SAMPLING DEPTH (M)	TURBIDITY (NTU)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	COLOR (PLATINUM COBALT UNITS)	ALKALINITY (MG/L AS CACO3)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2)	BICARBONATE (MG/L AS HCO3)	SULFATE DISSOLVED (MG/L AS SO4)	SULFIDE TOTAL (MG/L AS S)
APR . 1978										
09...	.70	4.0	4	56	10	16	2.5	20	4.3	.0
13...	1.0	7.0	13	46	10	3	4.0	4	5.0	.0
MAY										
01...	1.0	15	16	42	30	16	61	19	6.5	.0
14...	.70	8.0	3	49	50	16	127	20	5.7	.0
30...	.70	1.0	2	44	20	13	10	16	5.6	.0
30...	1.0	4.0	0	46	20	18	111	22	5.5	.0
JUL										
09...	.70	2.0	10	45	15	21	5.0	25	5.0	.0
10...	1.0	5.0	13	44	30	21	16	25	5.1	.0
AUG										
13...	.70	8.0	0	90	45	16	3.0	19	6.6	.0
14...	1.0	5.0	0	56	30	20	19	24	6.6	.0
27...	.70	4.0	12	42	10	17	8.4	21	6.8	.0
28...	1.0	6.0	7	100	10	16	8.0	20	7.1	.0
OCT										
18...	.70	2.0	0	46	--	19	5.8	23	6.0	.0
19...	1.0	3.0	1	49	--	14	5.4	17	6.5	.0
NOV										
28...	1.0	5.0	18	48	--	11	3.3	13	5.8	.0
JAN . 1979										
22...	1.0	10	8	50	--	16	8.0	20	8.7	.0
MAR										
19...	1.0	35	20	46	55	10	9.8	--	6.3	.0
19...	.70	30	13	51	45	10	7.8	--	6.3	.0
APR										
30...	1.0	15	28	32	60	12	19	--	4.3	.0
MAY										
02...	.70	15	14	49	30	12	24	--	3.2	.0
JUN										
11...	.70	5.0	2	44	10	15	5.9	--	4.0	.0
11...	1.0	6.0	16	44	10	14	11	--	4.2	.5
JUL										
23...	.70	5.0	5	40	15	17	6.7	--	3.3	.0
23...	1.0	4.0	5	47	5	20	31	--	4.1	.0
AUG										
20...	.70	5.0	0	54	35	19	12	--	5.3	.0
20...	1.0	4.0	0	54	25	21	10	--	5.4	.0
SEP										
16...	.70	5.0	0	56	5	18	8.8	--	6.6	.0
17...	1.0	5.0	5	51	10	19	12	--	7.0	.0
OCT										
14...	.70	4.0	3	51	8	14	6.9	--	6.8	.0
15...	1.0	3.0	9	46	5	13	6.4	--	6.3	.0
DEC										
09...	.70	3.0	6	44	10	9	14	--	6.2	.0
10...	1.0	6.0	8	46	10	15	9.3	--	6.6	.0

CH-01B (02339550) Chattahoochee River (city of Lanett intake) at Lanett, Ala., 1978 and 1979

DATE	SAM- PLING DEPTH (M)	TUR- BID- ITY (NTU)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	COLOR (PLAT- INUM COBALT UNITS)	ALKA- LINITY (MG/L AS CACO3)	CARBON DIOXIDE DIS- SOLVED (MG/L AS CO2)	BICAR- BONATE (MG/L AS HCO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	SULFIDE TOTAL (MG/L AS S)
APR . 1978										
09...	.70	4.0	6	34	20	11	1.8	14	5.4	.0
MAY										
01...	1.0	15	12	46	30	18	88	22	6.6	.0
14...	.70	10	2	50	30	17	34	21	4.5	.0
30...	.70	2.0	0	47	20	15	4.6	18	5.2	.0
30...	1.0	4.0	1	46	20	19	15	23	5.3	.0
JUL										
09...	.70	3.0	0	45	15	22	4.3	27	5.0	.0
10...	1.0	5.0	7	50	30	21	17	26	4.8	.0
AUG										
13...	.70	5.0	0	102	40	20	6.1	24	5.6	.0
14...	1.0	4.0	0	56	30	16	15	19	6.6	.0
27...	.70	2.0	10	48	20	16	6.1	19	7.0	.0
28...	1.0	3.0	9	99	20	12	9.6	15	6.9	.0
OCT										
18...	.70	2.0	5	48	7	17	6.7	21	6.4	.0
19...	1.0	3.0	9	51	--	14	5.4	17	6.1	.0
NOV										
27...	.70	7.0	10	45	--	13	4.1	16	6.1	.0
28...	1.0	8.0	19	45	--	12	7.6	15	5.8	.0
JAN . 1979										
22...	1.0	7.0	13	51	--	14	5.4	17	8.5	.0
MAR										
19...	1.0	35	17	46	70	11	6.8	--	6.3	.0
19...	.70	30	8	55	60	11	8.6	--	6.3	.0
APR										
30...	1.0	15	27	32	70	8	12	--	4.6	.0
MAY										
02...	.70	25	21	36	35	12	15	--	3.9	.0
JUN										
11...	.70	4.0	2	43	10	19	7.4	--	3.9	.0
11...	1.0	5.0	3	43	10	16	12	--	4.3	.0
JUL										
23...	.70	6.0	14	40	15	16	5.0	--	3.9	.0
23...	1.0	4.0	10	42	20	19	24	--	3.8	.0
AUG										
20...	.70	4.0	0	52	25	19	12	--	5.4	.0
20...	1.0	4.0	0	56	25	18	7.0	--	5.4	.0
SEP										
15...	.70	5.0	0	54	5	18	8.8	--	6.5	.0
17...	1.0	6.0	8	48	10	15	9.3	--	6.9	.0
OCT										
14...	.70	2.0	2	58	5	15	7.4	--	6.1	2.8
15...	1.0	5.0	11	46	5	12	4.7	--	6.1	.0
DEC										
09...	.70	4.0	6	48	10	10	25	--	6.1	.0
10...	1.0	6.0	6	48	10	26	13	--	6.6	.0

CH-01C (02339560) Chattahoochee River above junction of Long Cane Creek, near West Point, Ga., 1978 and 1979

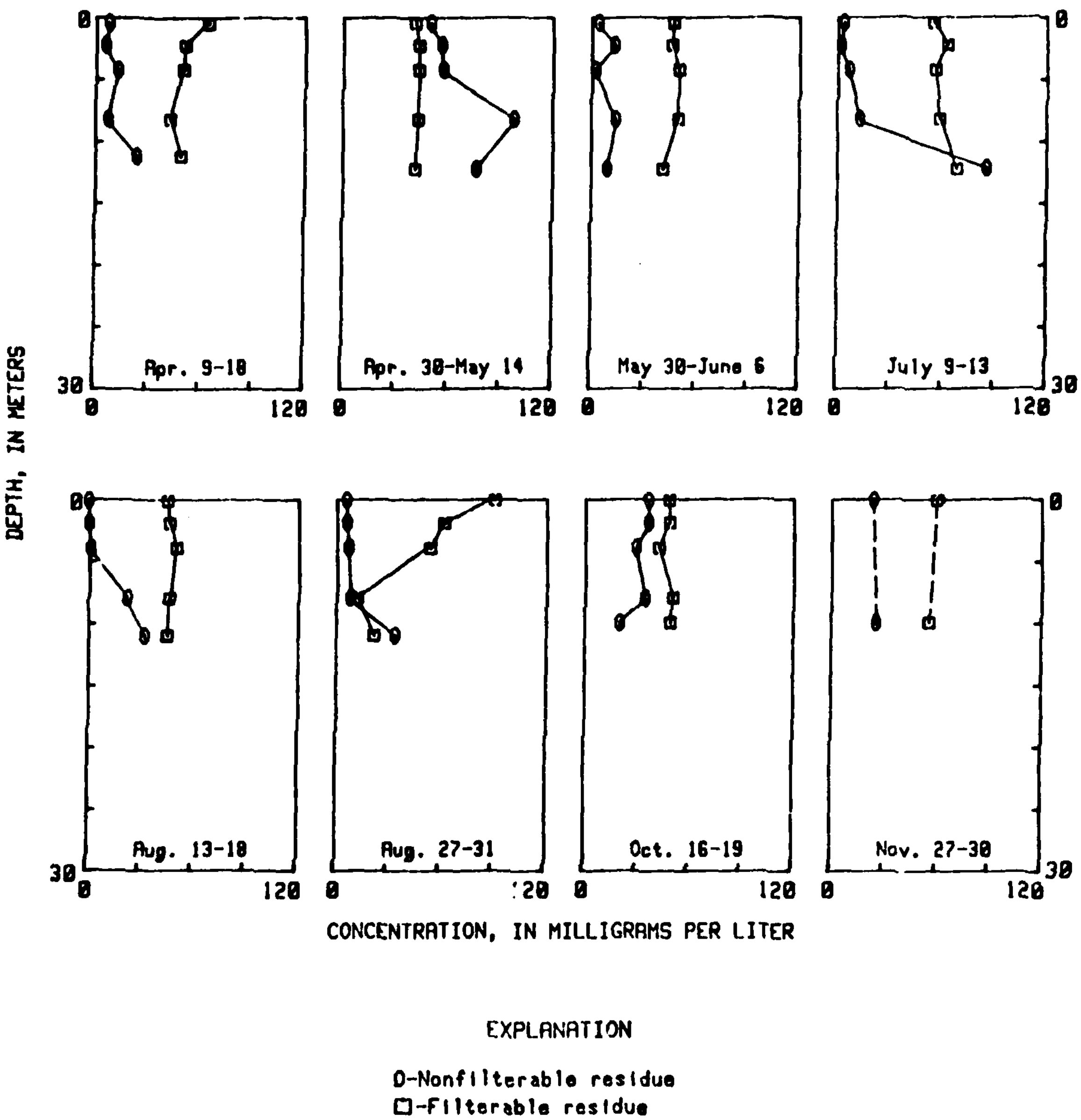
DATE	SAMPLING DEPTH (M)	TURBIDITY (NTU)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	COLOR (PLATINUM COBALT UNITS)	ALKALINITY (MG/L AS CACO3)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2)	BICARBONATE (MG/L AS HCO3)	SULFATE DISSOLVED (MG/L AS SO4)	SULFIDE TOTAL (MG/L AS S)
APR , 1978										
09...	.70	3.0	6	37	20	7	.9	9	5.6	.0
MAY										
01...	1.0	10	7	45	30	16	32	20	6.0	.0
14...	.70	7.0	4	50	30	17	--	21	5.6	.0
30...	.70	2.0	5	50	20	18	5.6	22	7.0	.0
30...	1.0	3.0	1	44	20	18	22	22	5.7	.0
JUL										
09...	.70	2.0	1	50	15	25	6.0	30	5.4	.0
10...	1.0	4.0	7	44	10	14	6.8	17	5.1	.0
AUG										
13...	.70	8.0	0	101	45	20	6.1	24	6.4	.0
14...	1.0	5.0	0	58	30	24	23	29	6.6	.0
27...	.70	3.0	12	50	20	19	5.8	23	7.2	.0
28...	1.0	3.0	1	107	20	15	18	18	7.0	.0
OCT										
18...	.70	2.0	3	50	--	16	5.1	20	6.3	.0
19...	1.0	3.0	7	47	--	16	6.1	19	6.2	.0
NOV										
27...	.70	8.0	16	54	--	14	8.6	17	6.6	.0
28...	1.0	9.0	25	49	--	8	4.0	10	5.7	.0
JAN , 1979										
22...	1.0	9.0	18	52	--	15	7.2	18	8.2	.0
MAR										
19...	1.0	30	15	47	70	10	16	--	6.3	.0
19...	.70	30	16	50	80	12	12	--	6.5	.0
MAY										
02...	.70	35	20	38	35	14	27	--	5.0	.0
JUN										
11...	.70	5.0	8	48	20	17	5.3	--	5.0	.6
11...	1.0	6.0	1	45	10	15	12	--	4.3	.0
JUL										
23...	.70	10	4	57	20	19	15	--	4.0	.0
23...	1.0	5.0	0	48	15	19	74	--	4.0	.0
AUG										
20...	.70	3.0	2	56	15	17	21	--	5.7	.0
20...	1.0	6.0	4	54	25	19	12	--	5.5	.0
SEP										
16...	.70	5.0	2	54	5	21	6.5	--	7.0	.0
17...	1.0	15	22	54	5	14	8.6	--	6.4	.0
OCT										
14...	.70	4.0	0	54	5	13	5.1	--	6.2	.0
15...	1.0	3.0	9	50	10	12	5.9	--	6.1	.0
DEC										
09...	.70	3.0	6	54	10	24	19	--	6.5	.0
10...	1.0	5.0	11	47	10	25	9.7	--	6.6	.0

CH-01D (02339780) Chattahoochee River at Langdale, Ala., 1978 and 1979

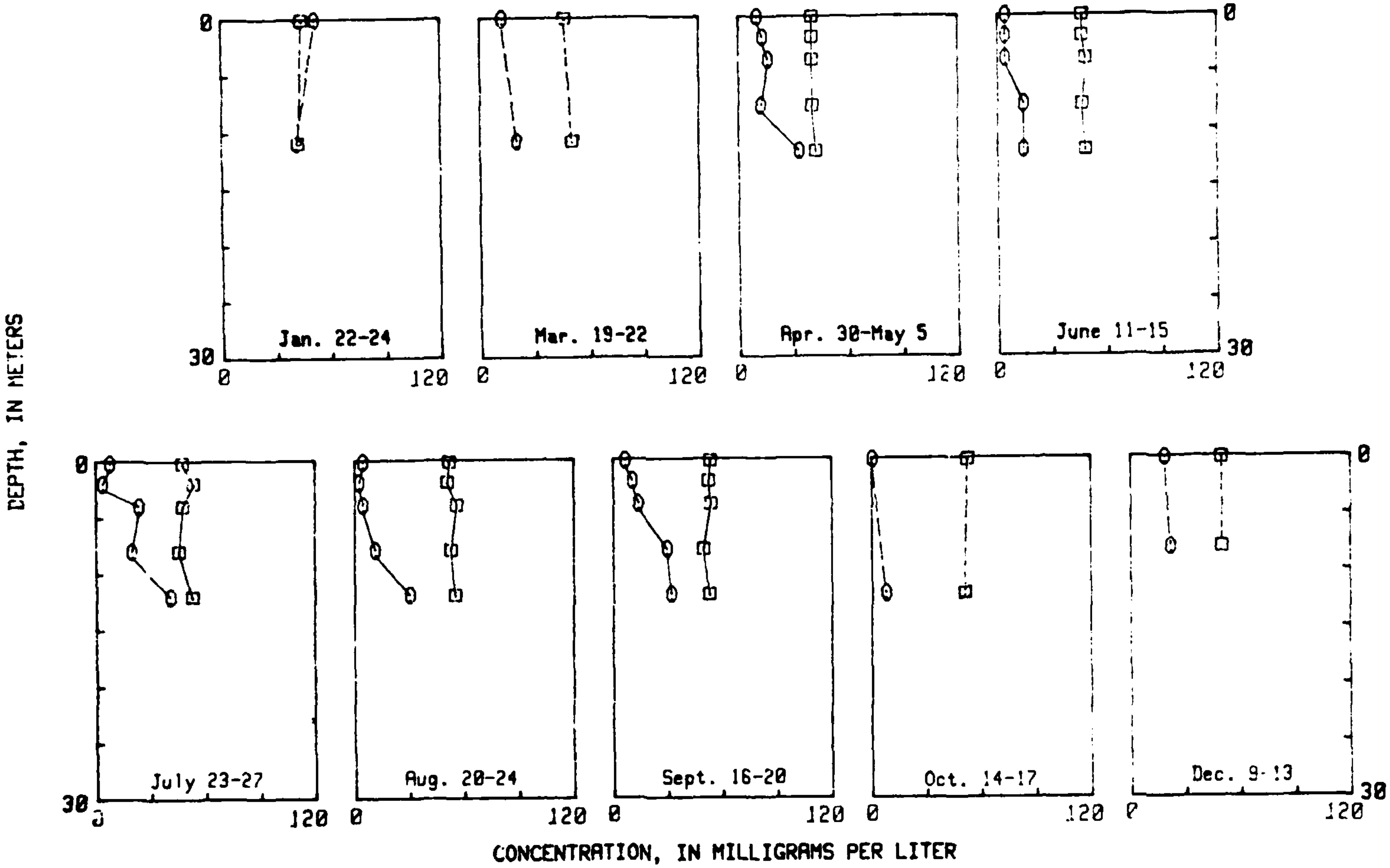
DATE	SAMPLING DEPTH (M)	TURBIDITY (NTU)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	COLOR (PLATINUM COBALT UNITS)	ALKALINITY (MG/L AS CACO3)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2)	BICARBONATE (MG/L AS HCO3)	SULFATE DISSOLVED (MG/L AS SO4)	SULFIDE TOTAL (MG/L AS S)
APR , 1978										
09...	.70	5.0	6	42	10	16	4.0	20	5.7	.0
MAY										
01...	1.0	10	11	47	30	17	42	21	6.1	.0
14...	.70	10	1	52	30	19	--	23	5.2	.0
30...	.70	4.0	4	51	20	16	8.0	20	6.6	.0
30...	1.0	7.0	10	46	20	18	44	22	6.0	.0
JUL										
09...	.70	3.0	1	50	15	16	3.2	20	5.4	.0
10...	1.0	5.0	13	50	10	24	15	29	5.1	.0
AUG										
13...	.70	8.0	1	101	45	16	8.0	20	6.6	.0
14...	1.0	4.0	4	56	30	24	23	29	6.5	.0
27...	.70	5.0	12	52	20	16	3.0	19	7.2	.0
28...	1.0	3.0	9	104	10	21	25	25	6.8	.0
OCT										
18...	.70	1.0	1	48	--	16	5.1	20	6.6	.0
19...	1.0	2.0	10	47	--	16	5.1	20	5.9	.0
NOV										
27...	.70	8.0	13	46	--	11	5.6	14	6.3	.0
28...	1.0	15	33	49	--	16	8.0	20	5.3	.0
JAN , 1979										
22...	1.0	15	16	53	--	15	4.6	18	8.7	.0
MAR										
19...	1.0	35	18	48	60	11	17	--	6.3	.0
19...	.70	35	18	50	50	11	14	--	6.9	.0
APR										
30...	1.0	35	24	36	70	10	9.8	--	4.3	.0
MAY										
02...	.70	30	18	38	35	11	22	--	4.6	.1
JUN										
11...	.70	4.0	10	50	10	17	3.3	--	4.3	.7
11...	1.0	5.0	19	41	10	17	13	--	4.2	.0
JUL										
23...	.70	20	18	53	60	14	11	--	4.5	.0
23...	1.0	15	25	45	10	20	99	--	5.	.0
AUG										
20...	1.0	5.0	0	61	15	21	10	--	5.7	.0
23...	.70	20	10	55	20	22	14	--	5.7	.0
SEP										
16...	.70	5.0	0	60	5	16	6.2	--	7.0	.0
17...	1.0	7.0	17	48	10	14	8.6	--	6.6	.0
OCT										
14...	.70	3.0	0	58	20	17	6.6	--	6.5	.0
15...	1.0	7.0	15	48	10	11	5.4	--	6.0	.0
DEC										
09...	.70	4.0	5	56	10	17	13	--	6.4	.0
10...	1.0	4.0	9	44	5	26	10	--	6.6	.0

APPENDIX C-5

Graphs showing variations in residue concentration with reservoir depth at stations in West Point Reservoir, April 1978-December 1979



CH-10 (02338710) Chattahoochee River at State Highway 219, near LaGrange, Ga., 1978

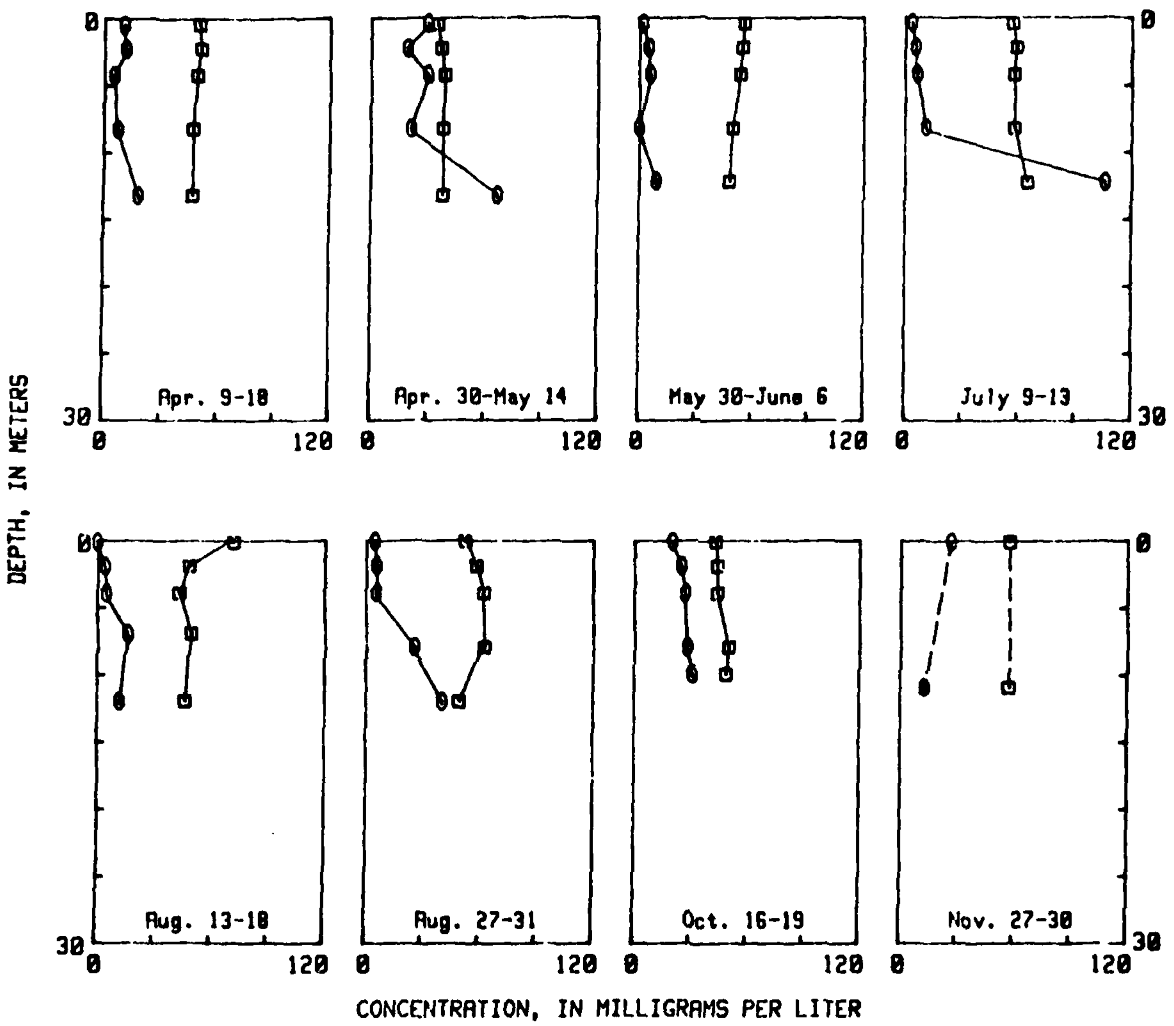


EXPLANATION

O-Nonfilterable residue

□-Filterable residue

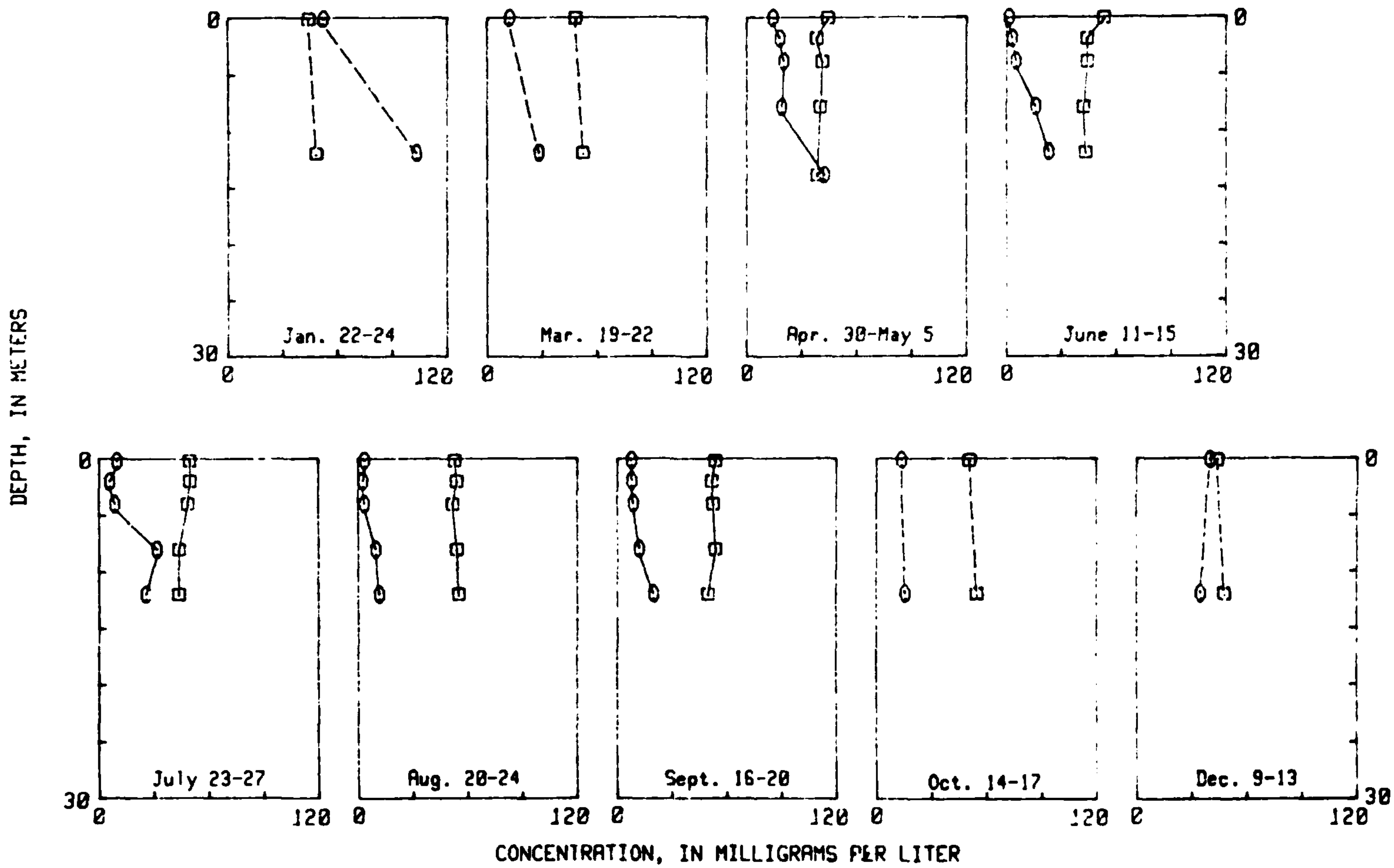
CH-10 (02338710) Chattahoochee River at State Highway 219, near LaGrange, Ga., 1979



EXPLANATION

O-Nonfilterable residue
□-Filterable residue

CH-07 (02338720) Chattahoochee River (city of LaGrange intake)
near LaGrange, Ga., 1978

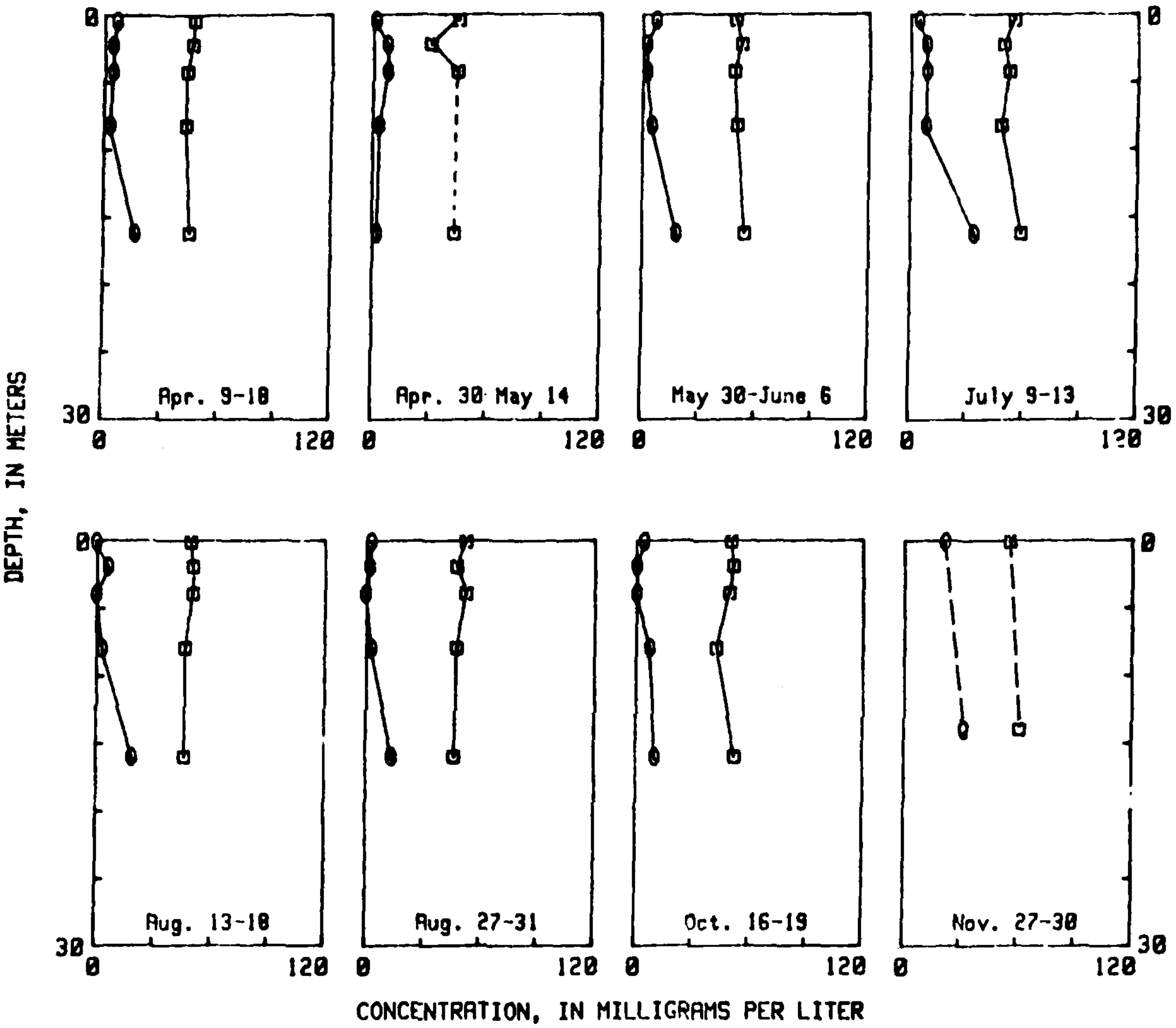


EXPLANATION

O-Nonfilterable residue

□-Filterable residue

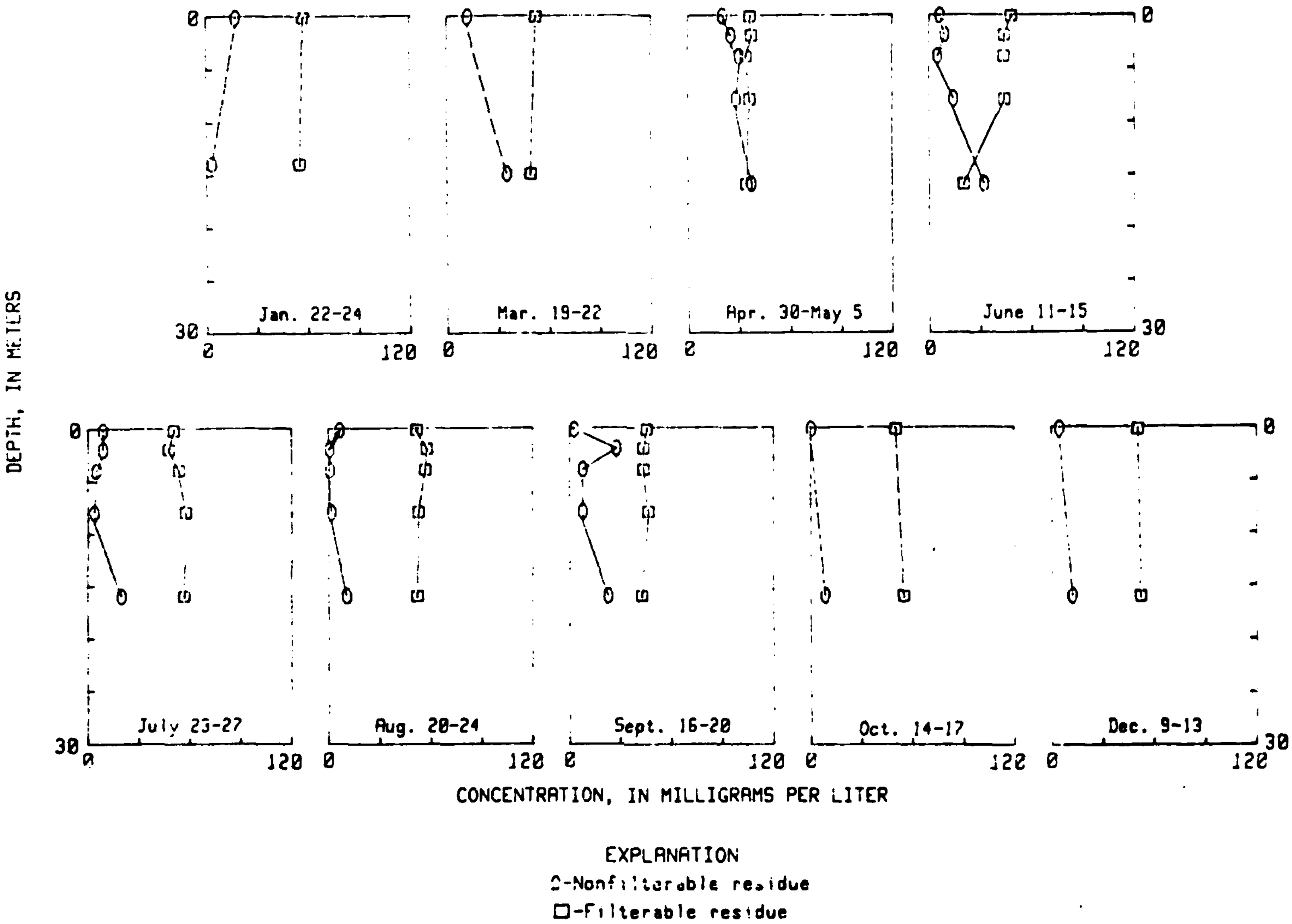
CH-07 (02338726; Chattahoochee River (city of LaGrange intake) near LaGrange, Ga., 1979



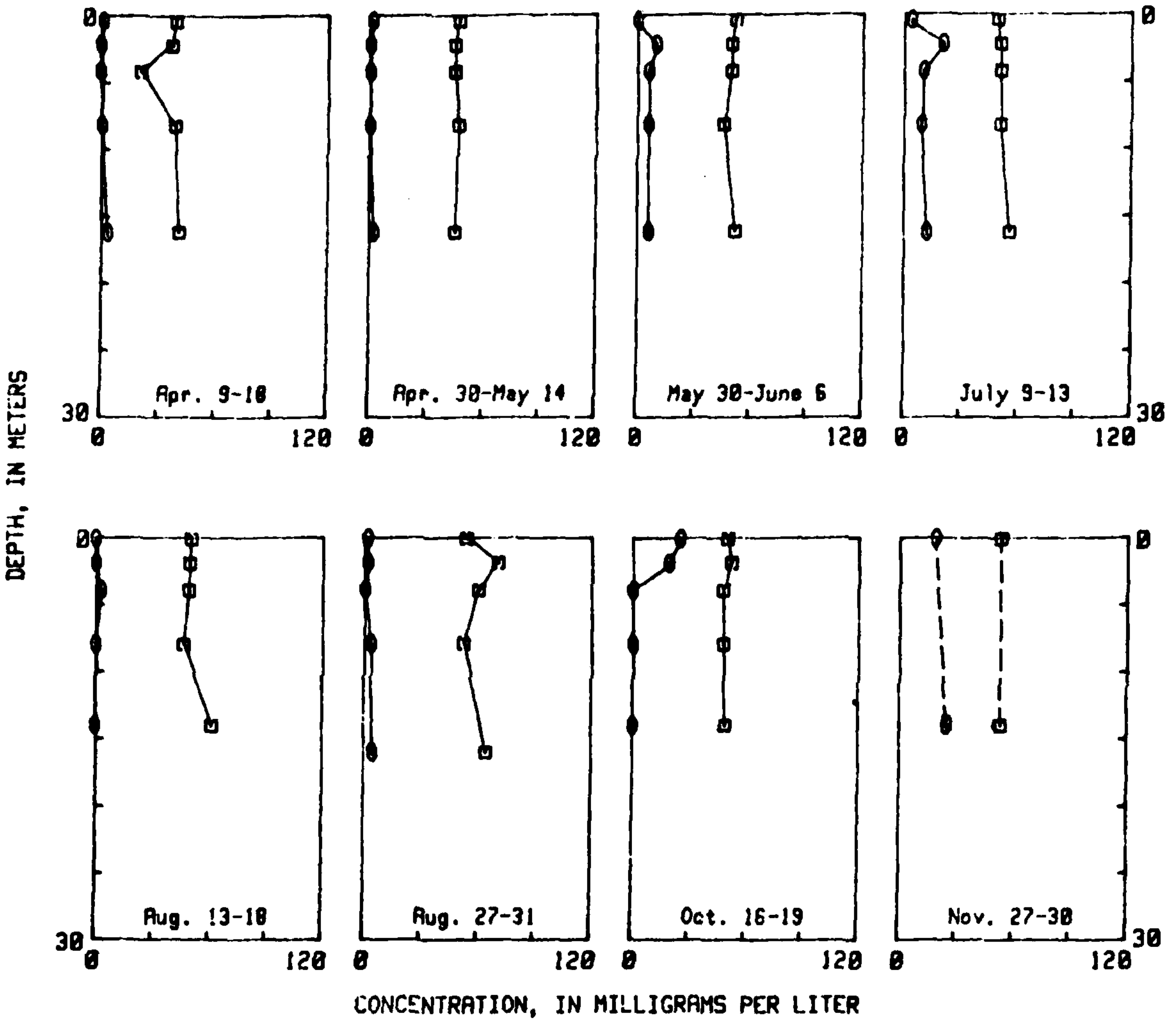
EXPLANATION

O-Nonfilterable residue
[]-Filterable residue

CH-05A (02339190) Chattahoochee River at State Highway 701, near Abbottsford, Ga., 1978



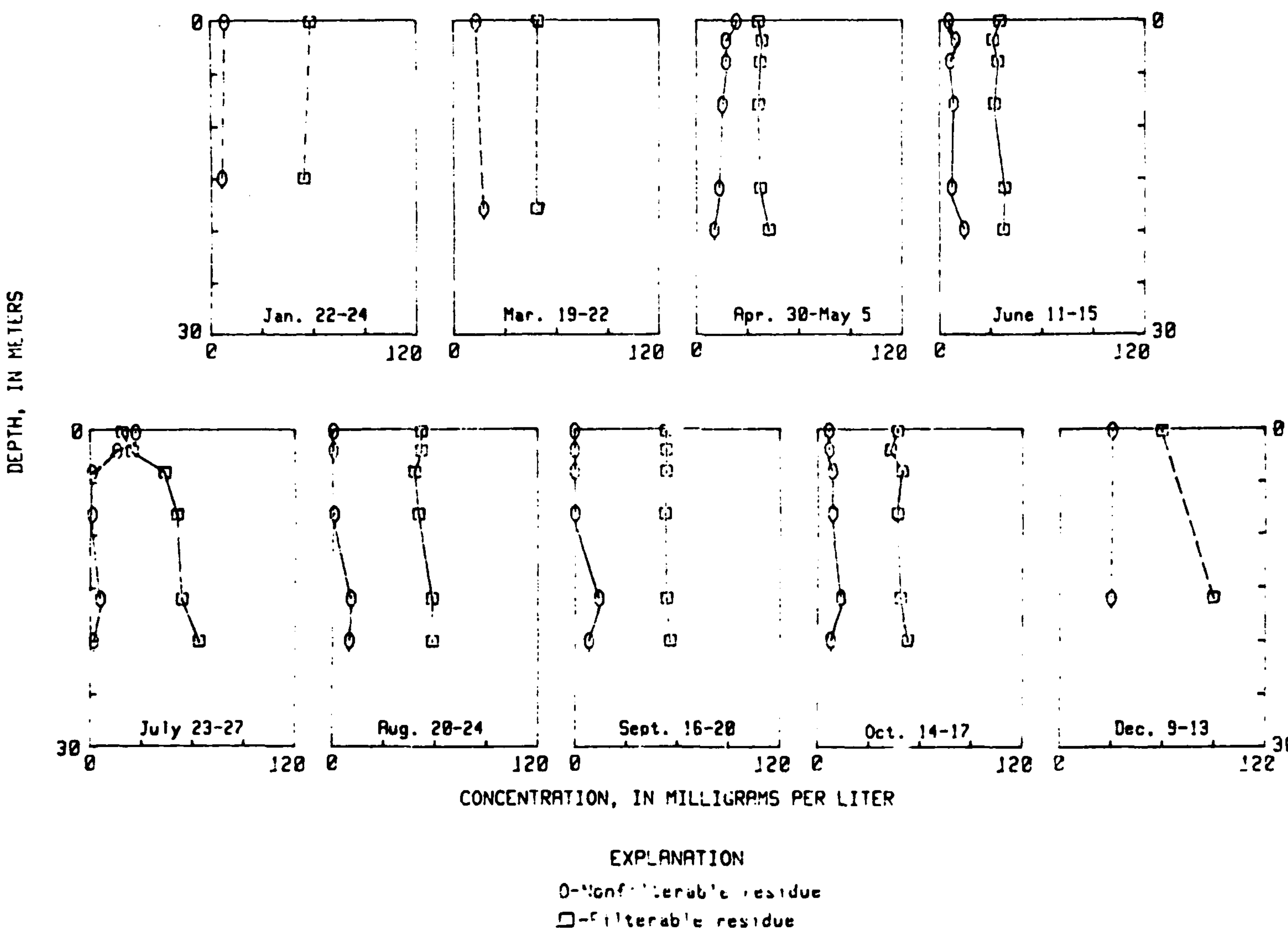
CH-05A (02339190) Chattahoochee River at State Highway 701, near Abbottsford, Ga., 1979



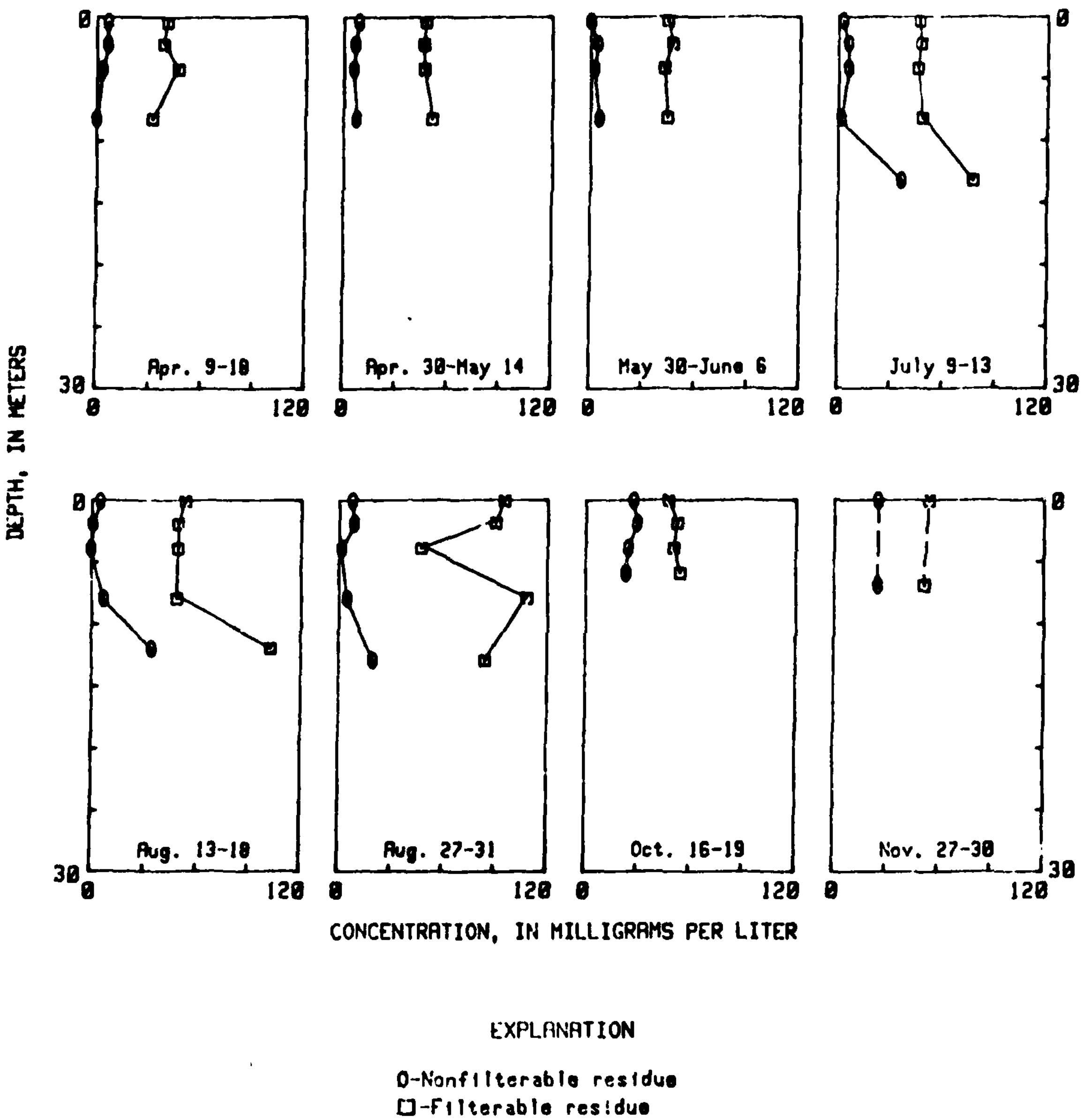
EXPLANATION

O-Nonfilterable residue
□-Filterable residue

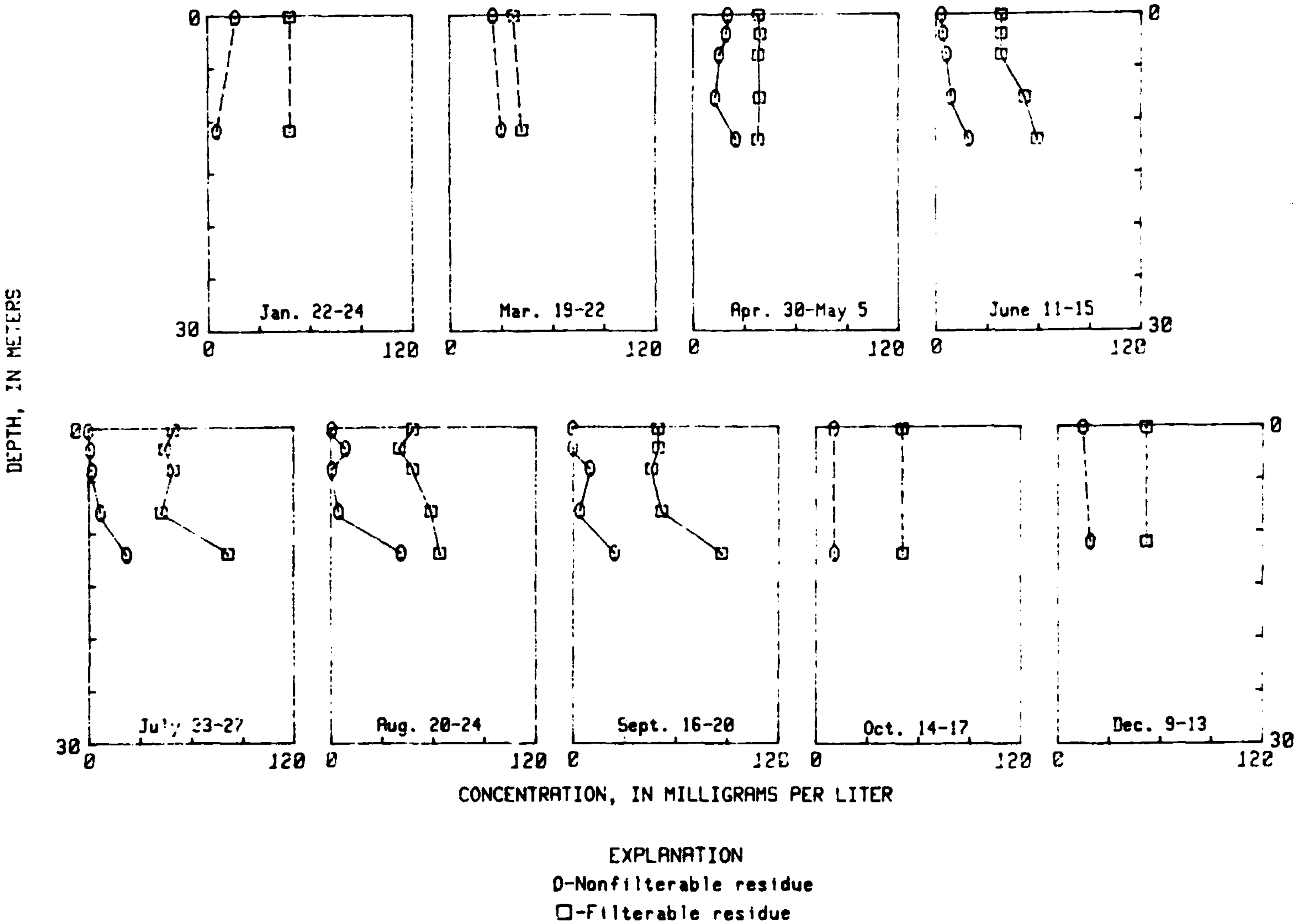
CH-03C (02339388) Chattahoochee River below coffer dam, above West Point Dam, 1978



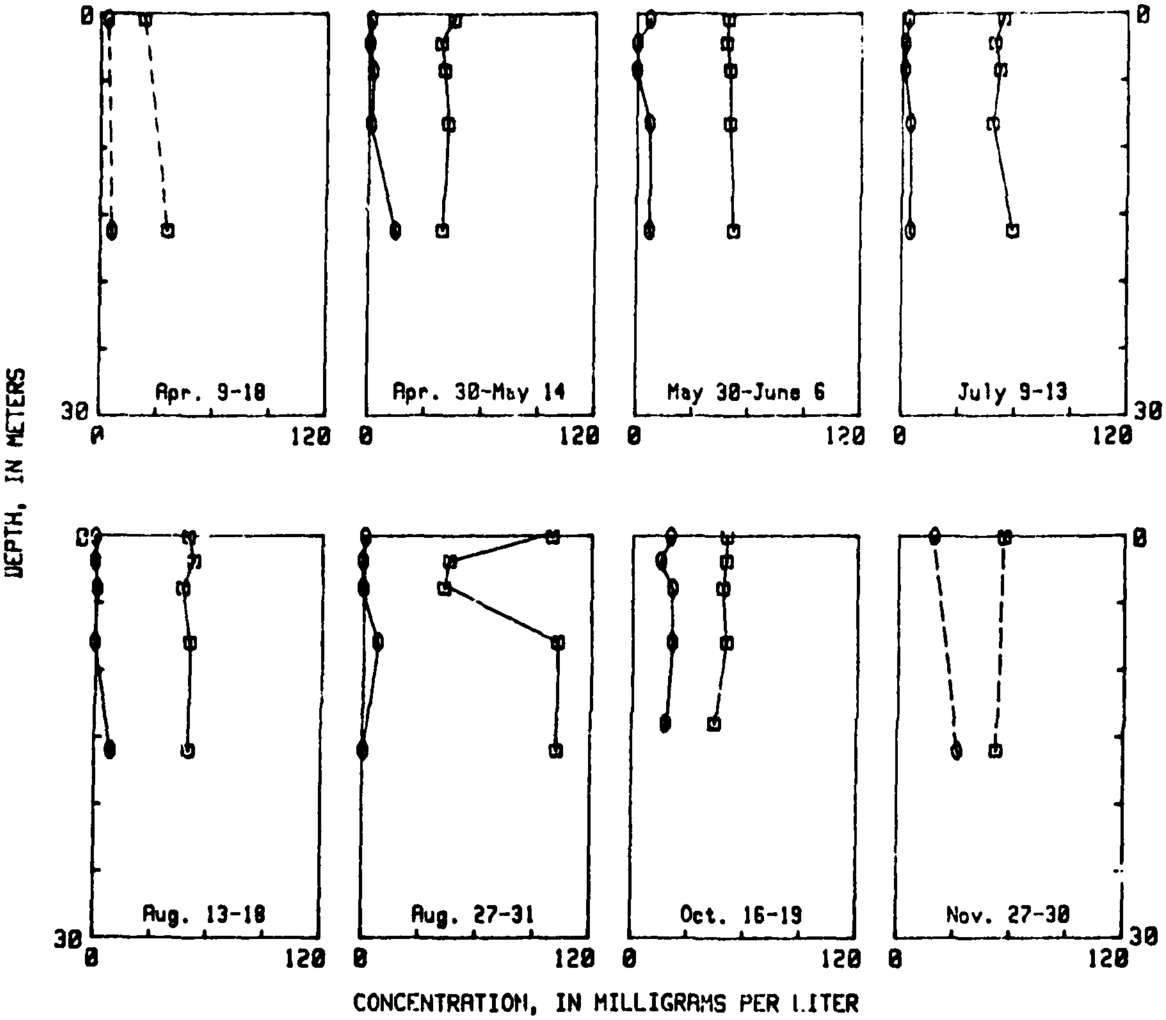
CH-03C (02339388) Chattahoochee River below coffer dam, above West Point Dam, 1979



CH-08 (02339020) Chattahoochee River at Cameron Mill Road, near LaGrange, Ga., 1978



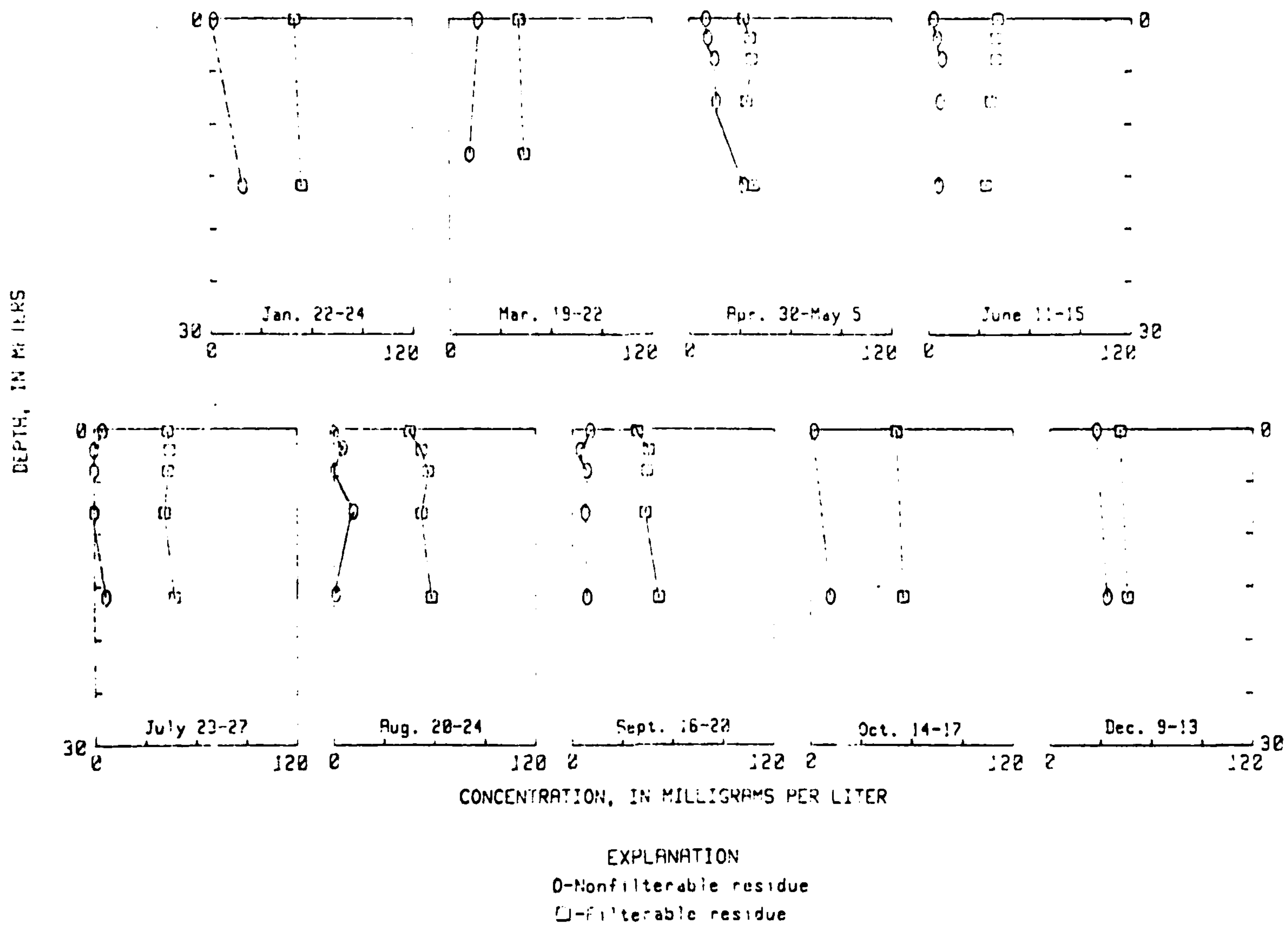
CH-08 (02339020) Chattahoochee River at Cameron Mill Road, near LaGrange, Ga., 1979



EXPLANATION

O-Nonfilterable residue
□-Filterable residue

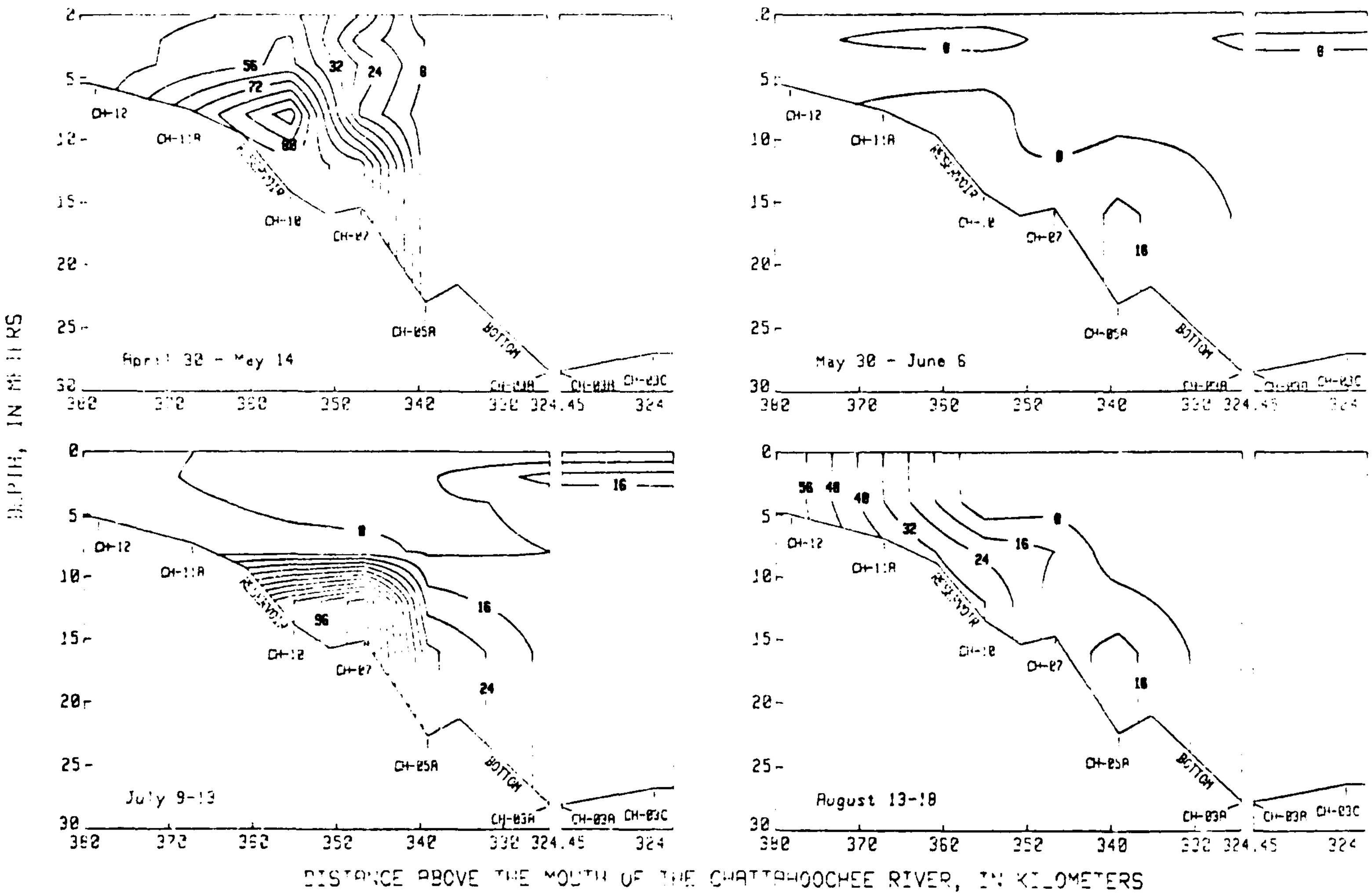
CH-13 (02339362) Wehadkee Creek at State Highway 238, near Abbottsford, Ga., 1978



CH-13 (02339362) Wehadkee Creek at State Highway 238, near Abbottsford, Ga., 1979

APPENDIX C-6

Isopleths showing longitudinal variations in residue concentrations in West Point Reservoir, April 1978-December 1979

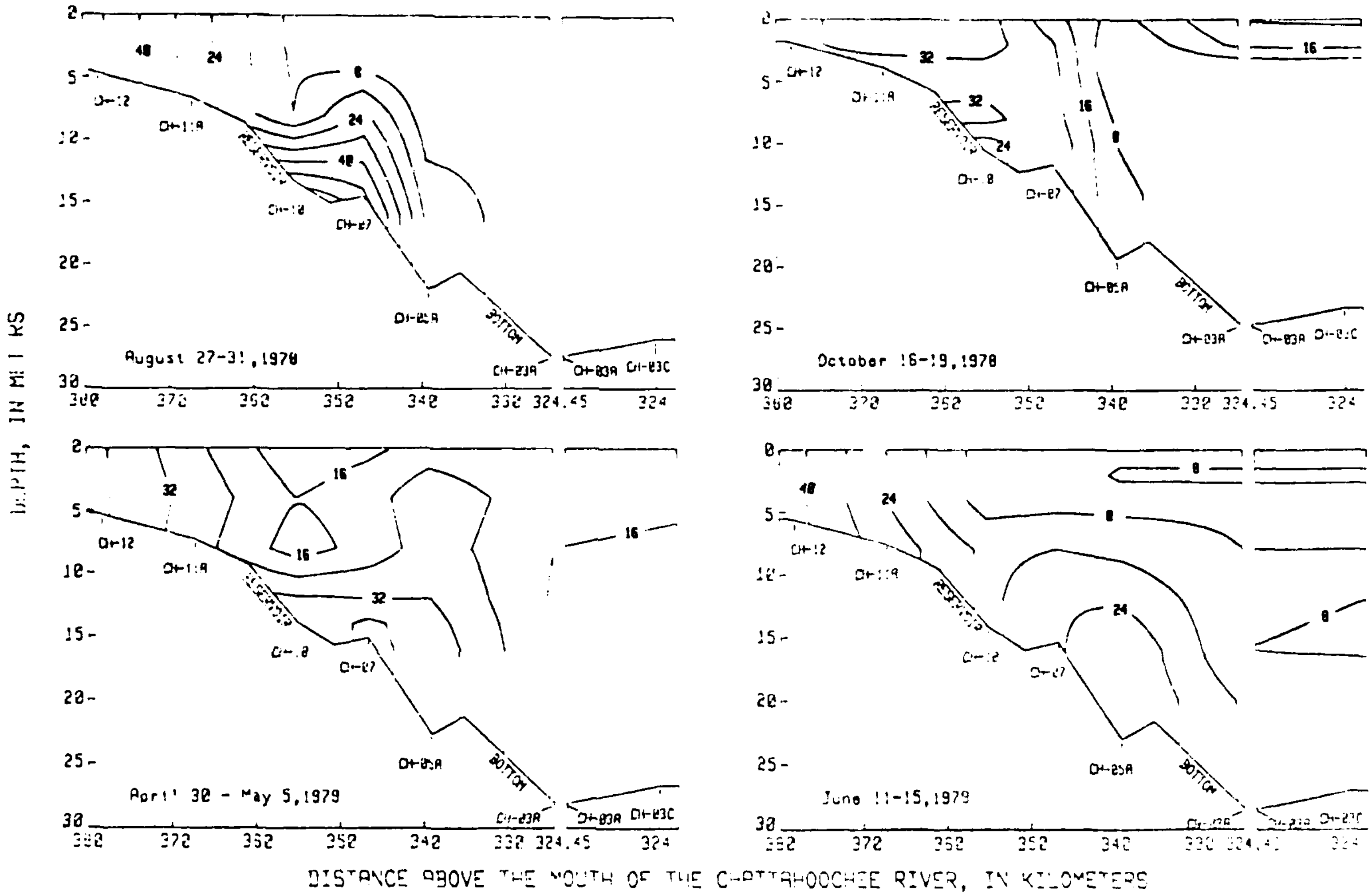


EXPLANATION

--40-- LINE OF EQUAL NONFILTERABLE-RESIDUE CONCENTRATION - Interval 8 milligrams per liter

CH-05A WATER SAMPLING STATION

Nonfilterable residue concentration, April-August 1978

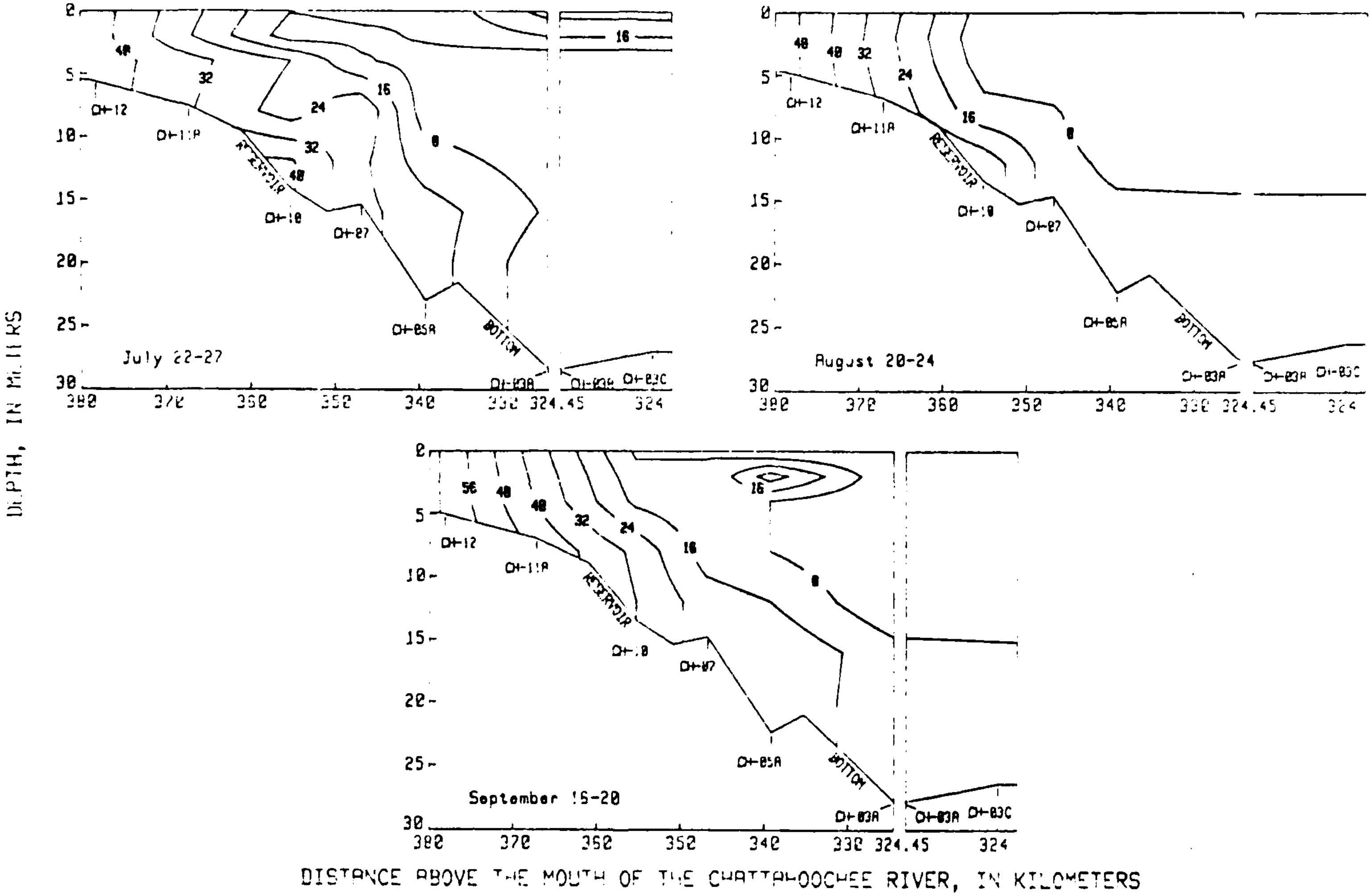


EXPLANATION

--16-- LINE OF EQUAL NONFILTERABLE-RESIDUE CONCENTRATION - Interval 8 milligrams per liter

CH-25A WATER SAMPLING STATION

Nonfilterabe residue concentration, August 1978 - June 1979

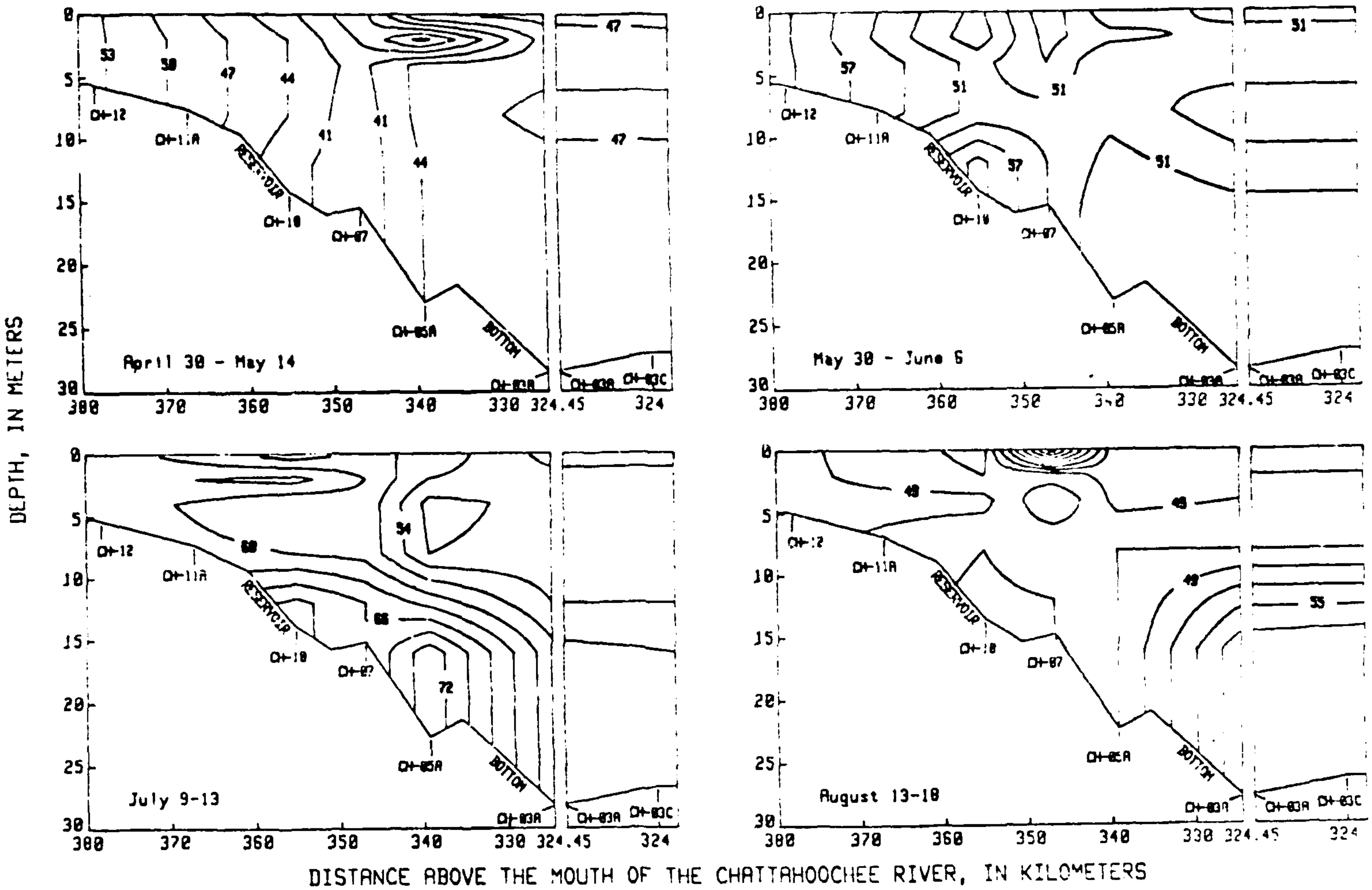


EXPLANATION

--32-- LINE OF EQUAL NONFILTERABLE-RESIDUE CONCENTRATION - Interval 8 milligrams per liter

CH-05A WATER SAMPLING STATION

Nonfilterable residue concentration, July-September 1979

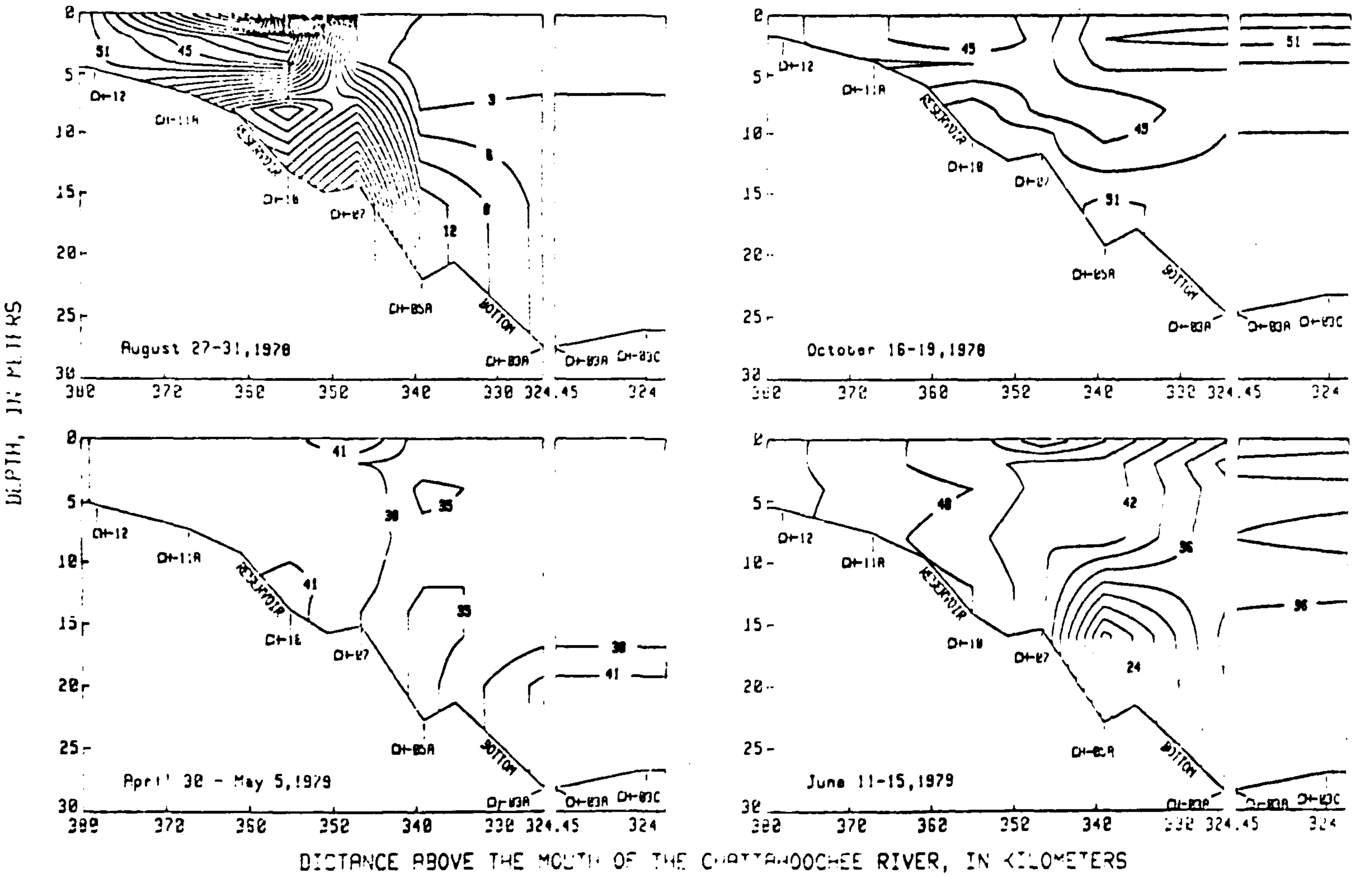


EXPLANATION

--44-- LINE OF EQUAL FILTERABLE-RESIDUE CONCENTRATION - Interval 3 milligrams per liter

CH-05A WATER SAMPLING STATION

Filterable residue concentration, April-August 1978

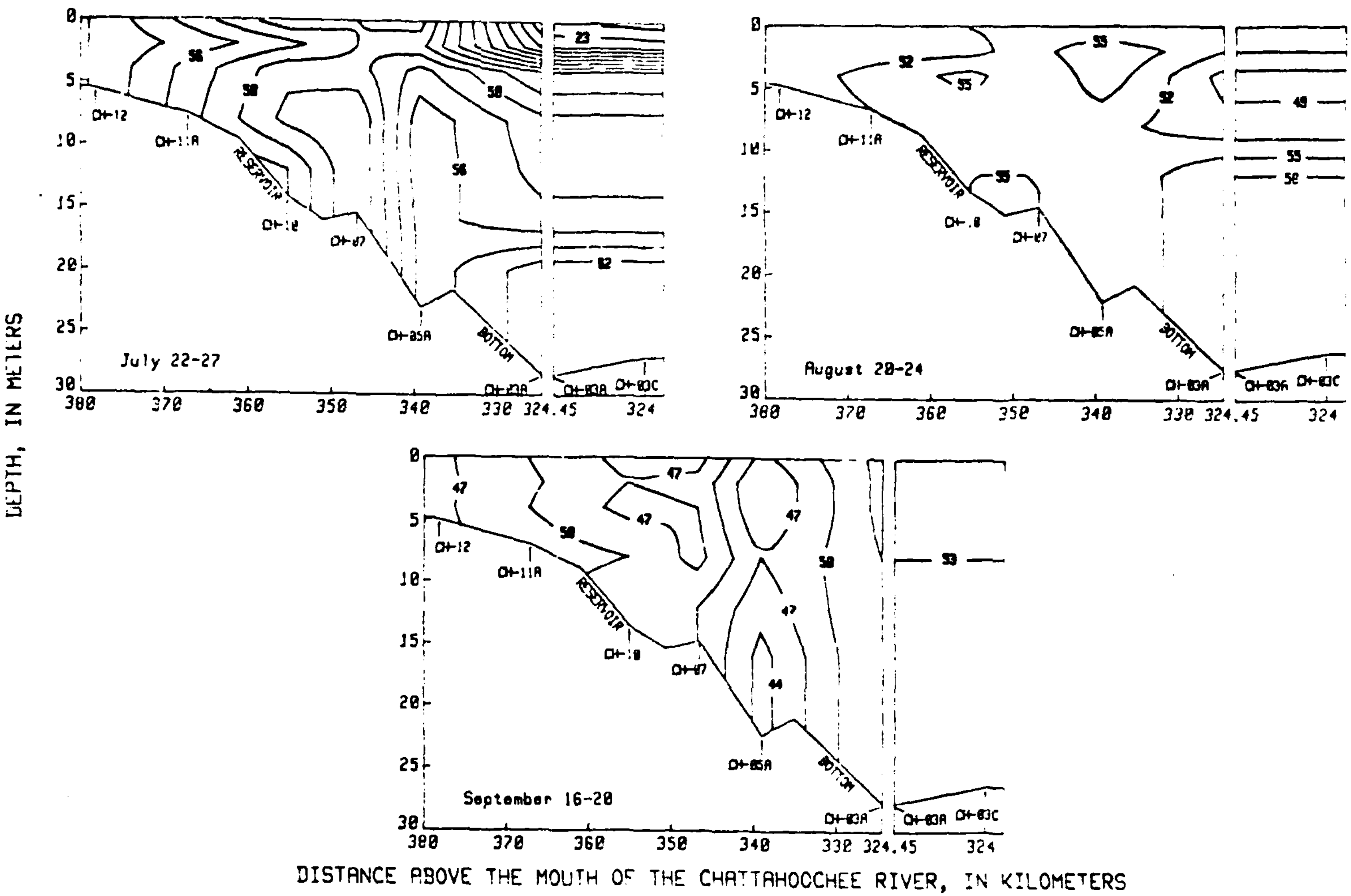


EXPLANATION

—45— LINE OF EQUAL FILTERABLE-RESIDUE CONCENTRATION - Interval 3 milligrams per liter

CH-25A WATER SAMPLING STATION

Filterable residue concentration, August 1978 - June 1979



EXPLANATION

--56-- LINE OF EQUAL FILTERABLE-RESIDUE CONCENTRATION - Interval 3 milligrams per liter

CH-05A WATER SAMPLING STATION

Filterable residue concentration, July-September 1979

APPENDIX C-7

Nutrient concentrations in West Point Reservoir and the Chattahoochee River below West Point Dam, April 1978-December 1979

[Phosphorus, total; phosphorus, orthophosphate, dissolved; nitrogen, total; nitrogen, nitrite plus nitrate, total; nitrogen, ammonia; nitrogen, organic, total; nitrogen, Kjeldahl, total; carbon, organic, total; and carbon, organic, dissolved]

CH-12 (02338500) Chattahoochee River at U.S. Highway 27, at Franklin, Ga., 1978 and 1979

DATE	SAM-PLING DEPTH (M)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)
APR , 1978										
18...	1.0	.160	.09	--	.20	.36	.56	--	4.3	2.1
MAY										
08...	1.0	.200	.08	--	.18	.34	.52	--	9.0	3.5
JUN										
06...	1.0	.240	.15	--	.46	.19	.65	--	4.6	4.0
JUL										
13...	1.0	.420	.28	1.5	.25	.65	.90	2.4	6.3	3.4
AUG										
17...	1.0	.260	.11	--	.20	.44	.64	--	17	4.7
31...	1.0	.230	.11	--	.09	.22	.31	--	7.3	2.6
OCT										
19...	1.0	.360	.18	.81	.20	.40	.60	1.4	2.7	2.7
NOV										
30...	1.0	.360	.25	.82	.25	.21	.46	1.3	2.8	2.8
JAN , 1979										
24...	1.0	.240	.06	.55	.21	.56	.77	1.3	10	4.2
MAR										
22...	1.0	.310	.16	.45	.27	.11	.38	1.3	3.6	3.6
MAY										
03...	1.0	.110	.06	.41	.05	.21	.26	.67	4.9	3.6
JUN										
13...	1.0	.230	.14	.82	.10	.30	.40	1.2	11	6.8
JUL										
26...	1.0	.300	.19	1.1	.29	.46	.75	1.9	5.6	3.6
AUG										
23...	1.0	.430	.15	1.0	.11	.00	.11	1.1	7.4	1.9
SEP										
20...	1.0	.250	.03	.64	.02	.50	.52	1.2	4.9	2.8
OCT										
17...	1.0	.250	.06	.74	.16	--	--	--	3.5	2.5
DEC										
13...	1.0	.390	.16	1.0	.32	.41	.73	1.7	4.2	3.5

DATE	SAMPLING DEPTH (M)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DISSOLVED (MG/L AS C)
MAR , 1979										
21...	.20	--	.07	.84	.23	--	--	--	1.9	1.9
21...	4.0	--	.05	.83	.24	--	--	--	3.3	1.5
MAY										
03...	.20	--	.08	.47	.08	--	--	--	6.6	4.4
03...	2.0	--	.09	.47	.08	--	--	--	2.8	2.0
03...	4.0	--	.11	.47	.07	--	--	--	3.0	1.6
03...	6.0	--	.08	.47	.07	--	--	--	5.4	3.5
JUN										
13...	.20	--	.08	1.0	.17	--	--	--	--	3.1
13...	2.0	--	.08	1.0	.21	--	--	--	2.8	2.8
13...	4.0	--	.07	.99	.20	--	--	--	3.2	3.1
JUL										
26...	.20	--	.09	.93	.10	.45	.55	1.5	4.9	3.1
26...	2.0	--	.10	.88	.14	.46	.60	1.5	6.1	3.4
26...	4.0	--	.09	.78	.14	.43	.57	1.3	4.3	2.5
26...	8.0	--	.06	.70	.19	.48	.67	1.4	4.3	2.9
AUG										
23...	.20	--	.06	1.2	.20	--	--	--	2.9	2.9
23...	2.0	--	.11	1.2	.35	--	--	--	2.2	2.2
23...	4.0	--	.09	1.2	.11	--	--	--	3.7	2.0
23...	8.0	--	.12	1.2	.07	--	--	--	2.2	2.2
SEP										
20...	.20	--	.06	.58	.05	--	--	--	4.0	3.1
20...	2.0	--	.05	.58	.06	--	--	--	3.6	3.5
20...	4.0	--	.06	.61	.10	--	--	--	4.2	2.8
20...	7.0	--	.06	.62	.10	--	--	--	3.1	3.1
OCT										
17...	.20	--	.06	.76	.14	--	--	--	2.5	2.5
17...	8.0	--	.06	.77	.14	--	--	--	2.1	2.1
DEC										
12...	.20	--	.05	1.0	.38	--	--	--	2.2	1.6
12...	4.0	--	.05	.97	.38	--	--	--	4.4	1.8

CH-16 (02338710) Chattahoochee River at State Highway 219, near LaGrange, Ga., 1978 and 1979

DATE	SAMPLING DEPTH (M)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DISSOLVED (MG/L AS C)
APR., 1978										
17...	.20	.070	.03	--	.02	.67	.69	--	8.2	5.5
17...	2.0	.080	.04	--	.15	.56	.71	--	--	6.3
17...	4.0	.090	.06	--	.27	.32	.59	--	6.0	3.7
17...	9.0	.120	.05	--	.30	1.0	1.3	--	7.6	6.3
17...	11.0	.160	.04	--	.37	.44	.81	--	--	7.0
MAY										
02...	.20	.130	.02	.42	.14	.74	.88	1.3	7.0	5.0
02...	2.0	.130	.02	.38	.13	.51	.64	1.0	5.6	5.4
02...	4.0	.130	.02	--	.11	.40	.51	--	10	5.8
02...	8.0	.150	.03	--	.09	.45	.54	--	5.6	4.6
02...	12.0	.150	.02	.31	.10	.46	.56	.87	7.9	6.0
JUN										
05...	.20	.030	.01	--	.00	.71	.71	--	6.3	5.7
05...	2.0	.010	.01	--	.02	.60	.62	--	7.4	5.9
05...	4.0	.040	.04	--	.29	.46	.75	--	5.8	4.6
05...	8.0	.040	.04	--	.52	.23	.75	--	4.0	2.8
05...	12.0	.050	.05	--	.60	.14	.74	--	2.7	2.3
JUL										
12...	.20	.050	.04	--	.10	.52	.62	--	7.2	6.0
12...	2.0	.050	.00	--	.10	.50	.60	--	4.3	2.9
12...	4.0	.030	.03	--	.12	.45	.57	--	8.2	2.4
12...	8.0	.120	.04	--	.65	.30	.95	--	3.5	3.5
12...	12.0	.360	.20	--	1.8	.40	2.2	--	4.3	1.0
AUG										
16...	.20	.050	.01	--	.00	.75	.75	--	14	7.1
16...	2.0	.050	.01	--	.01	.62	.63	--	9.3	8.0
16...	4.0	.070	.02	--	.06	.36	.42	--	8.4	--
16...	8.0	.120	.04	--	.15	.43	.59	--	11	5.2
16...	11.0	.140	.04	--	.15	.49	.64	--	7.3	4.4
29...	.20	.060	.01	--	.04	.59	.63	--	10	5.6
29...	2.0	.060	.01	--	.05	.60	.65	--	5.4	2.6
29...	4.0	.070	.03	--	.13	.18	.31	--	4.8	4.0
29...	8.0	.120	.05	--	.14	.16	.30	--	5.2	3.9
29...	11.0	.090	.05	--	.21	.04	.25	--	2.7	2.7
OCT										
17...	.20	.230	.14	.85	.18	.32	.50	1.3	3.1	3.1
17...	2.0	.240	.15	.84	.17	.18	.35	1.2	4.8	4.8
17...	4.0	.250	.19	.84	.18	.24	.42	1.3	3.6	3.6
17...	8.0	.250	.15	.83	.18	.17	.35	1.2	2.6	2.6
17...	10.0	.240	.23	.84	.18	.28	.46	1.3	3.2	3.2
NOV										
29...	.20	.130	.08	.85	.23	.24	.47	1.3	2.7	2.7
29...	9.0	.130	.07	.76	.21	.34	.55	1.3	1.6	1.4
JAN., 1979										
24...	.20	.150	.05	.49	.19	.29	.48	.97	5.7	5.7
24...	11.0	.150	.04	.51	.19	.22	.41	.92	4.8	4.2
MAR										
21...	.20	.120	.02	.71	.08	.46	.54	1.3	5.0	1.8
21...	11.0	.130	.02	.63	.22	.35	.57	1.2	5.3	3.5
MAY										
03...	.20	.080	.07	.46	.13	.16	.29	.75	4.3	2.5
03...	2.0	.040	.06	.47	.13	.20	.33	.80	4.4	4.4
03...	4.0	.070	.07	.46	.14	.21	.35	.81	2.1	1.5
03...	9.0	.090	.05	.45	.13	.11	.24	.69	4.1	3.3
03...	12.0	.090	.04	.44	.15	.19	.34	.78	3.2	3.2
JUN										
13...	.20	.060	.00	.28	.00	.45	.45	.73	7.5	3.7
13...	2.0	.090	.00	.44	.02	.38	.40	.84	5.7	5.7
13...	4.0	.070	.00	.46	.03	.24	.27	.73	2.3	1.8
13...	9.0	.090	.02	.48	.15	.18	.33	.81	2.9	1.5
13...	12.0	.100	.02	.47	.21	.13	.34	.81	2.7	1.6
JUL										
26...	.20	.090	.02	.45	.02	.74	.76	1.2	3.9	2.7
26...	2.0	.090	.02	.50	.07	.43	.50	1.1	2.7	2.7
26...	4.0	.120	.05	.60	.20	.40	.60	1.2	3.1	3.1
26...	8.0	.130	.05	.58	.20	.38	.58	1.2	2.7	2.4
26...	12.0	.140	.04	.57	.23	.42	.65	1.2	3.6	3.1
AUG										
22...	.20	.070	.00	.12	.01	.39	.40	.52	4.9	4.9
22...	2.0	.070	.00	.16	.01	.55	.56	.72	4.5	3.6
22...	4.0	.100	.03	.79	.25	.20	.45	1.2	3.8	3.8
22...	8.0	.140	.04	.87	.36	.00	.36	1.2	2.3	2.3
22...	12.0	.200	.03	.85	.41	.25	.66	1.5	3.0	2.3
SEP										
19...	.20	.060	.00	.77	.10	.22	.32	1.1	4.8	3.4
19...	2.0	.100	.01	.78	.23	.10	.33	1.1	5.0	2.6
19...	4.0	.120	.02	.75	.16	.25	.41	1.2	3.7	2.8
19...	8.0	.140	.02	.71	.21	.14	.35	1.1	4.2	2.4
19...	12.0	.150	.02	.68	.18	.27	.45	1.1	7.0	3.2
OCT										
16...	.20	.110	.04	.74	.12	.22	.34	1.1	2.3	2.3
16...	12.0	.130	.06	.75	.13	.28	.41	1.2	3.7	3.7
DEC										
12...	.20	.170	.03	.80	.29	.17	.46	1.3	3.0	1.6
12...	4.0	.190	.03	.83	1.5	.08	.48	1.3	2.4	1.8

DATE	SAM-PLING DEPTH (M)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)
APR., 1978										
12...	.20	.050	.06	--	.09	.25	.34	--	3.1	2.7
12...	2.0	.040	.06	--	.14	.25	.39	--	8.6	2.9
12...	4.0	.080	.05	--	.17	.23	.40	--	6.1	5.0
12...	8.0	.070	.05	--	.34	.11	.45	--	6.6	6.4
12...	11.0	.070	.03	--	.27	.19	.46	--	9.9	8.1
MAY										
04...	.20	.120	.03	--	.12	.35	.47	--	8.6	6.8
04...	2.0	.110	.03	--	.12	.34	.46	--	9.4	7.5
04...	4.0	.120	.03	--	.12	.26	.38	--	9.2	8.5
04...	8.0	.130	.03	--	.12	.31	.43	--	7.2	6.1
04...	13.0	.140	.02	--	.12	.53	.65	--	12	8.7
JUN										
01...	.20	.060	.02	--	.02	.70	.72	--	11	10
01...	2.0	.060	.01	--	.01	.62	.63	--	7.7	6.9
01...	4.0	.060	.04	--	.20	.33	.53	--	6.0	5.8
01...	8.0	.060	.04	--	.27	.23	.50	--	11	6.9
01...	12.0	.080	.07	--	.41	.25	.66	--	7.7	2.3
JUL										
11...	.20	.030	.00	--	.02	.53	.55	--	9.8	1.4
11...	2.0	.030	.00	--	.01	.57	.58	--	4.4	1.4
11...	4.0	.030	.00	.62	.17	.35	.52	1.1	4.8	2.9
11...	8.0	.070	.01	--	.73	.13	.86	--	1.4	1.1
11...	12.0	.390	.17	--	1.6	.40	2.0	--	3.6	1.2
AUG										
17...	.20	.040	.00	--	.00	.56	.56	--	5.6	4.8
17...	2.0	.040	.00	--	.00	.52	.52	--	9.4	5.7
17...	4.0	.050	.01	--	.06	.41	.47	--	7.3	6.9
17...	8.0	.100	.03	--	.20	.23	.43	--	5.5	3.9
17...	12.0	.110	.05	--	.19	.25	.44	--	8.9	8.2
29...	.20	.050	.05	--	.01	.48	.49	--	5.8	4.9
29...	2.0	.040	.01	--	.02	.47	.49	--	6.2	4.8
29...	4.0	.060	.01	--	.18	.36	.54	--	7.6	6.3
29...	8.0	.080	.04	--	.29	--	.26	--	3.8	3.6
29...	12.0	.140	.03	--	.21	.17	.38	--	8.8	4.4
OCT										
17...	.20	.160	.10	.89	.20	.18	.38	1.3	4.4	1.9
17...	2.0	.160	.11	.90	.20	.18	.38	1.3	1.7	1.5
17...	4.0	.170	.11	.90	.20	.22	.42	1.3	4.2	3.0
17...	8.0	.160	.13	.91	.18	.20	.38	1.3	5.7	1.4
17...	10.0	.170	.14	.91	.22	.33	.55	1.5	2.2	1.5
NOV										
29...	.20	.150	.10	.82	.28	.33	.61	1.4	1.7	1.7
29...	11.0	.150	.09	.81	.29	.31	.60	1.4	1.8	1.8
JAN., 1979										
24...	.20	.200	.06	.52	.42	.27	.69	1.2	6.4	4.3
24...	11.0	.360	.04	.52	.35	.48	.83	1.3	5.7	4.6
MAR										
21...	.20	.090	.02	.63	.01	.34	.35	.98	3.9	2.9
21...	12.0	.130	.03	.59	.32	.20	.52	1.1	--	2.0
MAY										
02...	.20	.070	.03	.35	.07	.32	.39	.74	3.1	1.9
02...	2.0	.070	.01	.34	.08	.27	.35	.69	5.6	4.9
02...	4.0	.060	.03	.36	.09	.20	.29	.65	3.8	3.8
02...	8.0	.070	.03	.36	.09	.18	.27	.63	2.1	2.1
02...	14.0	.090	.02	.36	.11	.30	.41	.77	3.6	3.6
JUN										
12...	.20	.070	.03	.43	.07	.57	.64	1.1	3.8	2.8
12...	2.0	.040	.02	.45	.07	.52	.59	1.0	4.7	2.5
12...	4.0	.070	.03	.44	.11	.35	.46	.90	6.5	6.5
12...	8.0	.030	.03	.48	.23	.27	.50	.98	4.4	4.4
12...	12.0	.070	.03	.41	.33	.29	.62	1.0	5.0	5.0
JUL										
26...	.20	.060	.02	.58	.03	.68	.71	1.3	3.4	3.4
26...	2.0	.070	.02	.62	.07	.48	.55	1.2	3.2	3.2
26...	4.0	.060	.02	.63	.08	1.0	1.1	1.7	3.3	3.2
26...	8.0	.110	.05	.71	.33	.47	.80	1.5	2.7	2.3
26...	12.0	.110	.04	.70	.32	.36	.68	1.4	3.0	3.0
AUG										
22...	.20	.040	.00	.12	.01	.38	.39	.51	4.6	4.6
22...	2.0	.040	.00	[illegible]	.01	.43	.44	.73	4.6	2.3
22...	4.0	.030	.00	.43	.18	.48	.66	1.1	2.8	2.4
22...	8.0	.080	.02	.65	.32	.02	.34	.99	4.3	3.1
22...	12.0	.110	.02	.72	.47	.21	.68	1.4	3.9	2.3
SEP										
19...	.20	.040	.02	.83	.24	.16	.40	1.2	7.2	4.5
19...	2.0	.070	.06	.88	.18	.22	.40	1.3	4.2	2.0
19...	4.0	.070	.02	.90	.19	.58	.77	1.7	6.1	1.9
19...	8.0	.090	.02	.89	.18	.25	.43	1.3	7.3	2.3
19...	12.0	.080	.03	.87	.19	.44	.63	1.5	4.0	4.0
OCT										
16...	.20	.090	.02	.68	.11	.15	.26	.94	2.8	2.8
16...	12.0	.090	.03	.66	.14	.20	.34	1.0	2.2	2.2
DEC										
11...	.20	.180	.05	.60	.20	.46	.66	1.3	2.4	1.5
11...	12.0	.140	.05	.62	.25	.30	.55	1.2	2.5	1.7

CH-05A (02339190) Chattahoochee River at State Highway 701, near Abbottsford, Ga., 1978 and 1979

DATE	SAM-PLING DEPTH (M)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)
APR , 1978										
12...	.20	.040	.01	--	.12	.56	.68	--	8.9	7.1
12...	2.0	.040	.01	--	.12	.35	.47	--	4.7	3.3
12...	4.0	.030	.01	--	.12	.24	.36	--	7.4	6.3
12...	8.0	.070	.03	--	.21	.27	.48	--	6.4	6.8
12...	16.0	.070	.02	--	.24	.26	.50	--	2.8	2.4
MAY										
03...	.20	.090	.01	.51	.13	.33	.46	.97	6.9	3.6
03...	2.0	.090	.03	.52	.12	.31	.43	.95	5.1	3.4
03...	4.0	.080	.02	--	.15	.28	.43	--	5.7	4.1
03...	8.0	.090	.05	.54	.16	.29	.45	.99	9.2	4.3
03...	16.0	.110	.03	--	.18	.27	.45	--	7.1	3.8
JUN										
01...	.20	.040	.01	--	.03	.49	.52	--	4.6	4.2
01...	2.0	.040	.01	--	.02	.52	.54	--	5.4	5.2
01...	4.0	.030	.03	--	.15	.31	.46	--	4.7	3.6
01...	8.0	.050	.03	--	.23	.30	.53	--	4.2	4.8
01...	16.0	.060	.04	--	.49	.22	.71	--	3.8	2.5
JUL										
11...	.20	.020	.01	--	.02	.51	.53	--	6.0	4.8
11...	2.0	.030	.00	--	.02	.49	.51	--	1.6	1.3
11...	4.0	.020	.01	--	.07	.47	.54	--	1.7	1.5
11...	8.0	.030	.01	--	.45	.23	.68	--	2.9	2.0
11...	16.0	.290	.21	--	1.5	.20	1.7	--	2.0	1.9
AUG										
15...	.20	.040	.00	--	.01	1.1	1.1	--	5.0	5.0
15...	2.0	.030	.00	--	.11	.45	.46	--	6.1	2.5
15...	4.0	.030	.00	--	.04	.56	.60	--	8.4	5.1
15...	8.0	.050	.01	--	.20	.68	.88	--	7.4	4.6
15...	16.0	.120	.02	--	.24	.73	.97	--	6.4	4.6
30...	.20	.030	.00	--	.00	.54	.54	--	13	8.6
30...	2.0	.040	.04	--	.00	.35	.35	--	17	6.4
30...	4.0	.030	.02	--	.01	.33	.34	--	9.0	9.0
30...	8.0	.060	.03	--	.28	.33	.61	--	9.1	3.5
30...	16.0	.090	.01	--	.32	.34	.66	--	8.4	8.2
OCT										
16...	.20	.030	.03	.81	.08	.25	.33	1.1	3.8	--
16...	2.0	.030	.01	.78	.08	.29	.17	1.1	3.2	2.2
16...	4.0	.060	.04	.77	.08	.48	.56	1.3	4.2	2.1
16...	8.0	.060	.04	.78	.15	.27	.42	1.2	5.1	2.5
16...	16.0	.110	.06	.99	.25	.22	.47	1.5	3.7	2.3
NOV										
28...	.20	.110	.01	.79	.22	.29	.51	1.3	2.4	1.6
28...	14.0	.140	.09	.81	.26	.30	.56	1.4	3.1	2.7
JAN , 1979										
23...	.20	.140	.03	.70	.46	.14	.60	1.3	4.6	6.5
23...	14.0	.170	.11	.70	.44	.10	.56	1.3	3.9	3.4
MAR										
20...	.20	.090	.02	.53	.03	.39	.42	.95	4.3	3.4
20...	15.0	.130	.05	.46	.21	.24	.45	.91	3.4	3.1
MAY										
01...	.20	.040	.03	.29	.02	.29	.31	.60	8.0	8.0
01...	2.0	.090	.04	.31	.07	.22	.29	.60	5.8	3.2
01...	4.0	.030	.05	.36	.10	.10	.20	.56	4.6	4.4
01...	8.0	.090	.05	.34	.10	.34	.44	.78	4.8	2.4
01...	16.0	.100	.06	.35	.12	.06	.18	.53	7.4	6.0
JUN										
12...	.20	.050	.00	.32	.06	.48	.54	.86	8.9	3.7
12...	2.0	.050	.00	.32	.07	.51	.58	.90	3.8	3.8
12...	4.0	.050	.00	.33	.07	.48	.55	.88	6.5	6.5
12...	8.0	.060	.04	.51	.23	.28	.51	1.0	3.1	3.1
12...	16.0	.040	.00	.18	.27	.22	.49	.67	2.7	2.6
JUL										
25...	.20	.040	.00	.39	.03	.57	.60	.99	3.4	2.9
25...	2.0	.040	.00	.40	.02	.47	.49	.89	3.4	3.2
25...	4.0	.040	.00	.40	.08	.41	.49	.89	3.0	2.3
25...	8.0	.040	.02	.71	.39	.16	.55	1.3	2.5	2.2
25...	16.0	.180	.01	.20	.86	.36	1.2	1.4	4.2	2.8
AUG										
22...	.20	.030	.00	.12	.01	.23	.24	.36	3.5	2.5
22...	2.0	.030	.00	.16	.02	.25	.27	.43	5.8	2.6
22...	4.0	.020	.00	.28	.15	.23	.38	.66	3.4	3.3
22...	8.0	.030	.00	.27	.41	.17	.58	.85	3.5	3.5
22...	16.0	.030	.00	.32	.66	.25	.91	1.2	2.9	2.9
SEP										
18...	.20	.040	.00	.46	.18	.34	.52	.98	5.4	2.2
18...	2.0	.040	.00	.44	.16	.34	.50	.94	4.6	2.5
18...	4.0	.040	.00	.44	.18	.37	.55	1.0	5.1	4.5
18...	8.0	.050	.00	.44	.20	.31	.51	.94	4.5	2.4
18...	16.0	.070	.00	.46	.21	.40	.61	1.1	5.5	4.8
OCT										
16...	.20	.050	.01	.56	.04	.36	.40	.96	3.0	3.0
16...	16.0	.080	.01	.66	.14	.32	.46	1.1	2.7	2.7
DEC										
13...	.20	.130	.00	.53	.27	.37	.64	1.2	2.4	2.0
13...	16.0	.120	.09	.57	.28	.20	.48	1.1	2.2	2.2

02339380 Chattahoochee River below cotter dam, above West Point Dam, 1978 and 1979

DATE	SAMPLING DEPTH (M)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DISSOLVED (MG/L AS C)
APR , 1978										
10...	.20	.040	.00	--	.03	.52	.55	--	5.7	3.9
10...	2.0	.040	.01	.23	.05	.46	.51	.74	4.8	4.7
10...	4.0	.030	.01	.36	.10	.28	.38	.74	5.4	3.9
10...	8.0	.020	.01	.48	.11	.17	.28	.76	4.4	2.9
10...	16.0	.060	.02	.52	.12	.17	.29	.81	4.9	3.2
MAY										
14...	.20	.040	.04	--	.07	.29	.36	--	6.6	4.3
14...	2.0	.030	.03	--	.07	.38	.45	--	7.6	6.7
14...	4.0	.010	.01	--	.07	.40	.47	--	12	2.8
14...	8.0	.010	.01	--	.10	.14	.24	--	7.7	5.8
14...	16.0	.030	.03	--	.19	.14	.33	--	6.3	5.6
31...	.20	.020	.00	--	.01	.35	.36	--	7.8	5.6
31...	2.0	.020	.00	--	.00	.40	.40	--	5.1	5.0
31...	4.0	.020	.00	--	.04	.27	.31	--	5.6	1.8
31...	8.0	.020	.02	--	.10	.23	.33	--	3.5	2.7
31...	16.0	.040	.02	--	.08	.25	.33	--	10	5.3
JUL										
10...	.20	.010	.01	--	.04	--	--	--	2.7	2.4
10...	2.0	.010	.01	--	.00	.32	.32	--	3.8	3.2
10...	4.0	.010	.01	--	.03	--	--	--	1.8	1.7
10...	4.0	.010	.01	--	.20	--	--	--	2.7	2.0
10...	16.0	.090	.06	--	.59	--	--	--	2.5	1.7
AUG										
14...	.20	.010	.00	--	.05	.58	.63	--	16	6.1
14...	2.0	.050	.00	--	.05	.83	.88	--	9.4	9.4
14...	4.0	.010	.01	--	.05	1.0	1.1	--	7.4	7.3
14...	8.0	.010	.00	--	.17	.39	.56	--	6.2	6.2
14...	16.0	.040	.01	--	.75	.45	1.2	--	3.1	2.6
30...	.20	.010	.00	--	.00	.31	.31	--	9.4	3.1
30...	2.0	.010	.00	--	.00	.20	.20	--	5.6	5.8
30...	4.0	.010	.00	--	.00	.23	.23	--	7.5	2.9
30...	8.0	.020	.00	--	.12	.18	.30	--	17	3.8
30...	16.0	.050	.00	--	.24	.25	.49	--	7.1	6.9
OCT										
16...	.20	.030	.03	.37	.16	.22	.38	.75	4.5	4.5
16...	2.0	.020	.02	.37	.17	.32	.49	.86	3.5	3.2
16...	4.0	.030	.03	.37	.16	.34	.50	.87	7.5	7.5
16...	8.0	.020	.01	.37	.16	.27	.43	.80	4.9	3.4
16...	14.0	.020	.00	.75	.23	.31	.54	1.3	4.3	4.3
NOV										
28...	.20	.020	.02	.68	.16	.22	.38	1.1	3.5	3.5
28...	14.0	.030	.00	.68	.14	.24	.38	1.1	4.1	2.3
JAN , 1979										
22...	.20	.060	.03	.84	.23	.05	.28	1.1	6.2	6.2
22...	15.0	.060	.03	.84	.23	.1[illegible]	.33	1.2	2.7	2.6
MAR										
20...	.20	.090	.02	[illegible]	.02	.36	.38	.74	6.1	6.3
20...	18.0	.060	.04	[illegible]	.14	.22	.36	.82	6.2	6.2
MAY										
01...	.20	.040	.00	.21	.01	.49	.50	.71	6.6	6.6
01...	2.0	.040	.00	.20	.01	.45	.46	.66	6.5	5.0
01...	4.0	.060	.00	.28	.01	.50	.51	.79	[illegible]	3.6
01...	8.0	.050	.02	.29	.08	.22	.30	.59	9.8	6.2
01...	16.0	.060	.02	.30	.09	.16	.25	.55	6.4	4.4
01...	20.0	.040	.01	.31	.10	.22	.32	.63	5.6	3.6
JUN										
14...	.20	.030	.00	.11	.00	.87	.87	.98	3.8	3.8
14...	2.0	.030	.00	.11	.00	.31	.31	.42	4.0	2.3
14...	4.0	.030	.00	.11	.00	.32	.32	.43	3.3	2.4
14...	8.0	.020	.00	.11	.00	.32	.32	.43	4.7	4.7
14...	16.0	.020	.00	.42	.08	.15	.23	.65	2.1	2.0
14...	20.0	.040	.00	.33	.15	.11	.26	.59	4.2	2.1
JUL										
24...	.20	.010	.00	.17	.12	.54	.66	.83	3.5	2.6
24...	2.0	.020	.00	.06	.01	.42	.43	.44	4.3	2.8
24...	4.0	.010	.00	.06	.02	.38	.40	.46	4.5	3.0
24...	8.0	.010	.00	.24	.17	.16	.33	.57	3.3	2.3
24...	16.0	.070	.04	.01	.62	.19	.81	.82	4.2	2.5
24...	20.0	.130	.10	.02	.84	.36	1.2	1.2	3.5	2.6
AUG										
21...	.20	.010	.00	.00	.00	.17	.17	.17	5.7	2.4
21...	2.0	.020	.01	.00	.00	.19	.19	.19	3.2	3.0
21...	4.0	.010	.03	.01	.02	.28	.30	.31	4.1	4.1
21...	8.0	.010	.00	.00	.05	.18	.23	.21	4.5	4.5
21...	16.0	.040	.00	.05	.62	.48	1.1	1.2	5.6	4.2
21...	20.0	.030	.05	.00	.88	.32	1.2	1.2	3.9	2.1
SEP										
17...	.20	.020	.00	.06	.11	.45	.56	.62	--	6.8
17...	2.0	.010	.00	.06	.13	.52	.65	.71	2.8	2.5
17...	4.0	.010	.00	.06	.12	.44	.56	.62	2.5	2.5
17...	8.0	.020	.00	.06	.13	.41	.54	.60	6.2	3.2
17...	16.0	.060	.00	.06	.80	.30	1.1	1.2	2.3	2.2
17...	20.0	.060	.00	.06	.86	.36	1.2	1.3	3.3	2.5
OCT										
15...	.20	.020	.00	.52	.02	.22	.24	.76	3.1	3.1
15...	2.0	.020	.00	.52	.04	.30	.34	.86	2.7	2.0
15...	4.0	.020	.00	.54	.04	.29	.33	.87	2.2	2.2
15...	8.0	.020	.00	.52	.04	.27	.31	.83	1.8	1.8
15...	16.0	.010	.00	.59	.09	.27	.36	.95	2.0	1.7
15...	20.0	.060	.01	.04	.17	.46	.63	1.3	2.2	2.2
DEC										
10...	.20	.040	.03	.52	.04	.66	.75	1.1	4.5	2.6
10...	16.0	.040	.00	.49	.11	.41	.92	1.4	2.8	2.1

CH-08 (02339020) Yellowjacket Creek at Cameron Mill Road, near LaGrange, Ga., 1978 and 1979

DATE	SAM-PLING DEPTH (M)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)
APR , 1978										
17...	.20	.030	.03	--	.01	.56	.57	--	6.6	2.0
17...	2.0	.030	.02	--	.01	.64	.65	--	4.7	3.0
17...	4.0	.040	.01	--	.16	.34	.50	--	3.9	3.7
17...	8.0	.060	.05	--	.21	.23	.44	--	4.0	2.6
MAY										
02...	.20	.030	.01	.28	.02	.38	.40	.68	4.8	4.4
02...	2.0	.030	.01	.26	.02	.47	.49	.75	8.0	5.4
02...	4.0	.030	.00	.32	.13	.31	.44	.76	7.7	5.0
02...	8.0	.050	.02	.53	.24	.23	.47	1.0	5.4	3.2
JUN										
05...	.20	.020	.01	--	.01	.49	.50	--	6.3	5.7
05...	2.0	.010	.00	--	.00	.67	.67	--	6.6	5.4
05...	4.0	.010	.01	--	.17	.33	.50	--	4.1	3.0
05...	8.0	.010	.00	--	.16	.24	.40	--	4.3	3.6
JUL										
12...	.20	.020	.00	--	.01	.36	.37	--	8.1	6.6
12...	2.0	.020	.01	--	.01	.41	.42	--	6.0	4.3
12...	4.0	.020	.01	--	.02	.40	.42	--	4.8	3.1
12...	8.0	.010	.00	--	.35	.18	.53	--	3.6	3.0
12...	13.0	.150	.15	--	1.4	.30	1.7	--	6.2	5.9
AUG										
15...	.20	030	.00	--	.00	1.0	1.0	--	5.1	4.2
15...	2.0	.040	--	--	.01	.36	.37	--	8.0	3.8
15...	4.0	.020	.00	--	.21	.43	.64	--	2.8	2.3
15...	8.0	.060	.05	--	.26	.25	.51	--	9.0	2.7
15...	12.0	.240	.20	--	2.6	.00	2.6	--	5.2	4.4
28...	.20	.030	.00	--	.01	.53	.54	--	11	9.7
28...	2.0	.030	.00	--	.01	.39	.40	--	7.7	7.7
28...	4.0	.020	.01	--	.01	.35	.36	--	5.3	3.4
28...	8.0	.010	.01	--	.47	.00	.47	--	11	5.9
28...	[illegible]	.270	.14	--	2.9	.10	--	--	20	11
OCT										
17...	.20	.030	.02	.68	.25	.19	.44	1.1	7.8	2.7
17...	2.0	.030	.01	.76	.22	.37	.59	1.3	6.4	6.4
17...	4.0	.040	.04	.77	.23	.18	.41	1.2	4.4	2.5
17...	8.0	.040	.01	.77	.23	.29	.52	1.3	6.2	4.1
NOV										
29...	.20	.030	.01	.61	.17	.26	.43	1.0	2.6	1.9
29...	7.0	.030	.03	.62	.15	.27	.42	1.0	4.1	4.1
JAN , 1979										
23...	.20	.040	.00	.46	.15	.13	.28	.74	4.2	4.2
23...	11.0	.030	.01	.43	.12	.21	.33	.76	2.8	2.8
MAR										
2...	.20	.070	.00	.34	.01	.46	.47	.81	5.9	5.8
21...	11.0	.070	.00	.28	.25	.22	.47	.75	5.0	5.0
MAY										
01...	.20	.050	.00	.11	.01	.41	.42	.53	9.0	6.2
01...	2.0	.050	.00	.13	.03	.19	.22	.35	4.8	4.8
01...	4.0	.070	.02	.29	.10	.15	.25	.54	3.6	3.6
01...	8.0	.070	.03	.35	.12	.24	.36	.71	3.2	3.2
01...	12.0	.070	.01	.14	.33	.14	.47	.61	11	9.2
JUN										
12...	.20	.030	.02	.03	.00	.45	.45	.48	4.2	4.2
12...	2.0	.010	.00	.04	.00	.46	.46	.50	4.3	2.9
12...	4.0	.030	.00	.07	.01	.43	.44	.51	4.7	2.4
12...	8.0	.060	.03	.56	.20	.27	.47	1.0	2.7	2.4
12...	12.0	.110	.09	.00	.78	.22	1.0	1.0	3.8	2.9
JUL										
25...	.20	.040	.00	.14	.03	.41	.44	.58	4.2	3.2
25...	2.0	.010	.01	.16	.02	.44	.45	.62	4.4	2.4
25...	4.0	.020	.00	.51	.21	.38	.59	1.1	2.7	2.0
25...	8.0	.020	.01	.19	.28	.19	.47	.66	2.2	2.0
25...	12.0	.170	.12	.02	1.3	.60	1.9	1.9	4.8	3.2
AUG										
22...	.20	.020	.00	.01	.01	.18	.19	.20	3.6	2.8
22...	2.0	.030	.00	.01	.01	.08	.09	.10	4.6	4.0
22...	4.0	.020	.00	.05	.09	.22	.31	.36	4.3	4.3
22...	8.0	.050	.02	.00	.63	.01	.64	.64	3.3	3.2
22...	12.0	.220	.15	.00	2.0	.10	2.1	2.1	5.2	4.5
SEP										
19...	.20	.030	.00	.32	.11	.41	.52	.84	6.2	2.2
19...	2.0	.030	.00	.32	.13	.10	.23	.55	6.9	2.1
19...	4.0	.020	.00	.33	.14	.10	.24	.57	3.8	2.2
19...	8.0	.030	.00	.35	.18	.32	.50	.85	5.2	5.0
19...	12.0	.140	.10	.02	2.2	.90	3.1	3.1	16	6.9
OCT										
16...	.20	.040	.00	.42	.08	.35	.43	.85	3.3	3.1
16...	12.0	.070	.02	.61	.16	.23	.39	1.0	2.7	2.7
DEC										
12...	.20	.040	.00	.23	.26	.27	.53	.76	3.6	3.6
12...	11.0	.120	.00	.86	.27	.21	.48	1.3	2.3	2.3

CH-04 (02339350) Wehadkee Creek at State Highway 244, near Abbottsford, Ga., 1978 and 1979

DATE	SAM-PLING DEPTH (M)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)
OCT , 1978										
18...	.20	.040	.32	.00	.06	--	--	--	8.9	5.1
18...	2.0	.000	.00	.02	.08	--	--	--	6.8	3.6
18...	4.0	.050	.01	.00	.07	--	--	--	11	5.8
NOV										
28...	.20	.040	.04	.13	.30	.33	.63	.76	2.7	2.6
28...	4.0	.020	.01	.12	.30	.31	.61	.73	2.5	2.5
JAN , 1979										
23...	.20	--	.01	.24	.12	--	--	--	5.2	3.9
23...	8.0	--	.01	.24	.11	--	--	--	3.5	3.5
MAR										
20...	.20	--	.01	.14	.03	--	--	--	5.3	4.0
20...	5.0	--	.01	.15	.06	--	--	--	4.7	4.7
APR										
30...	.20	--	.01	.04	.01	--	--	--	5.4	4.4
30...	2.0	--	.02	.04	.02	--	--	--	4.6	--
30...	4.0	--	.02	.07	.05	--	--	--	--	--
30...	6.0	--	.03	.10	.10	--	--	--	4.4	8.2
JUN										
14...	.20	--	.00	.00	.01	--	--	--	3.3	3.3
14...	2.0	--	.00	.00	.01	--	--	--	4.2	4.2
14...	4.0	--	.00	.05	.03	--	--	--	2.5	2.5
14...	8.0	--	.00	.00	.17	--	--	--	3.0	2.7
JUL										
25...	.20	--	.01	.01	.00	.39	.39	.40	3.4	3.4
25...	2.0	--	.00	.01	.01	.42	.43	.44	3.9	3.9
25...	4.0	--	.00	.00	.18	.62	.80	.80	3.7	3.7
25...	8.0	--	.01	.04	.02	.34	.36	.40	4.0	2.4
AUG										
21...	.20	--	.00	.01	.00	--	--	--	4.2	4.2
21...	2.0	--	.00	.00	.01	--	--	--	4.9	3.1
21...	4.0	--	.02	.00	.01	--	--	--	11	2.3
21...	8.0	--	.01	.00	.67	--	--	--	4.0	2.8
SEP										
18...	.20	--	.00	.01	.15	--	--	--	6.1	3.0
18...	2.0	--	.00	.01	.11	--	--	--	5.2	3.2
18...	4.0	--	.00	.02	.14	--	--	--	7.0	5.0
18...	8.0	--	.00	.00	.08	--	--	--	15	2.5
OCT										
16...	.20	--	.00	.06	.08	--	--	--	4.2	3.7
16...	8.0	--	.00	.06	.08	--	--	--	3.2	3.0
DEC										
11...	.20	--	.00	.08	.04	--	--	--	4.2	2.3
11...	8.0	--	.00	.07	.04	--	--	--	2.9	2.5

CH-13 (02339362) Wehadkee Creek at State Highway 236, near Abouttaford, Ala., 1978 and 1979

DATE	SAMPLING DEPTH (M)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	[illegible] AS [illegible]	NITROGEN, TOTAL (MG/L AS N)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DISSOLVED (MG/L AS C)
APR., 1978										
11...	1.0	.040	.00	--	.09	.47	.56	--	6.7	4.0
11...	16.0	.030	.00	.30	.09	.14	.23	.53	4.0	3.3
MAY										
04...	.20	.020	.00	--	.09	.19	.28	--	8.0	3.7
04...	2..	.020	.00	--	.08	.27	.35	--	7.3	6.1
04...	4.0	.040	.04	--	.08	.21	.29	--	6.1	4.1
04...	8.0	.020	.02	--	.13	.23	.36	--	7.4	6.0
04...	16.0	.040	.02	--	.16	.16	.32	--	7.1	6.1
31...	.20	.020	.00	--	.01	.49	.50	--	6.7	6.0
31...	2.0	.020	.00	--	.00	.37	.37	--	7.0	5.4
31...	4.0	.030	.00	--	.09	.35	.44	--	12	6.0
31...	8.0	.040	.01	--	.16	.30	.46	--	7.1	2.5
31...	16.0	.030	.00	--	.17	.30	.47	--	3.6	3.4
JUL										
10...	.20	.020	.00	.21	.00	.41	.41	.62	5.0	4.2
10...	2.0	.010	.01	--	.04	.28	.32	--	5.2	4.2
10...	4.0	.020	.02	.34	.02	.40	.42	.81	2.9	2.7
10...	8.0	.010	.00	--	.33	--	--	--	10	7.4
10...	16.0	.020	.02	--	.38	--	--	--	3.6	3.0
AUG										
16...	.20	.020	.00	--	.08	.44	.52	--	8.6	8.6
16...	2.0	.020	.00	--	.03	.52	.55	--	9.2	7.8
16...	4.0	.010	.00	--	.01	.34	.35	--	4.6	4.6
16...	8.0	.020	.01	--	.18	.29	.47	--	6.9	6.8
16...	16.0	.050	.00	--	.95	.45	1.4	--	9.6	6.7
28...	.20	.020	.00	--	.00	.42	.42	--	9.4	3.4
28...	2.0	.020	.00	--	.00	.26	.26	--	11	7.6
28...	4.0	.020	.00	--	.01	.34	.35	--	17	3.5
28...	8.0	.010	.00	--	.11	.19	.30	--	8.4	8.4
28...	16.0	.040	.00	--	.29	.02	.31	--	14	2.9
OCT										
16...	.20	.020	.02	.33	.18	.17	.35	.68	4.1	3.6
16...	2.0	.020	.02	.35	.18	.22	.40	.75	5.7	5.2
16...	4.0	.020	.01	.34	.17	.14	.31	.65	8.8	8.3
16...	8.0	.020	.01	.39	.16	.45	.61	1.0	8.5	8.0
16...	14.0	.070	.03	.85	.24	.15	.39	1.2	6.5	4.4
NOV										
28...	.20	.030	.03	.61	.15	.25	.40	1.0	3.6	3.4
28...	15.0	.080	.07	.67	.22	.29	.51	1.2	1.7	1.7
JAN., 1979										
23...	.20	.090	.04	.71	.20	.23	.43	1.1	1.9	1.9
23...	16.0	.100	.06	.85	.27	.20	.47	1.3	2.7	2.1
MAR										
20...	.20	.050	.01	.29	.01	.36	.37	.66	6.0	6.0
20...	13.0	.020	.01	.41	.06	.13	.19	.60	5.4	3.9
APR										
30...	.20	.020	.02	.11	.01	.20	.21	.32	4.6	4.6
30...	2.0	.010	.00	.15	.02	.14	.16	.31	3.6	3.6
30...	4.0	.040	.02	.36	.11	.06	.17	.53	2.8	1.8
30...	8.0	.050	.05	--	.26	.00	.26	--	3.6	2.2
30...	16.0	.020	.00	.21	.15	.12	.27	.48	3.4	3.0
JUN										
14...	.20	.040	.00	.16	.02	.46	.48	.64	5.5	5.5
14...	2.0	.040	.00	.18	.03	.34	.37	.55	6.2	5.5
14...	4.0	.040	.00	.23	.03	.44	.47	.70	4.4	2.5
14...	8.0	.020	.00	.26	.05	.14	.19	.45	3.4	2.7
14...	16.0	.040	.00	.13	.13	.12	.25	.38	2.9	2.9
JUL										
25...	.20	.020	.00	.16	.01	.46	.47	.63	5.4	5.4
25...	2.0	.020	.00	.21	.01	.31	.32	.53	3.5	2.2
25...	4.0	.020	.00	.21	.01	1.3	1.3	1.5	5.5	2.3
25...	8.0	.010	.00	.12	.13	.22	.35	.47	4.1	4.1
25...	16.0	.020	.11	.00	.68	.30	.98	.98	3.9	3.9
AUG										
21...	.20	.010	.00	.00	.01	.23	.24	.24	4.6	4.6
21...	2.0	.010	.00	.01	.03	.03	.06	.07	6.0	6.0
21...	4.0	.020	.00	.04	.03	.26	.29	.33	2.7	2.5
21...	8.0	.010	.00	.09	.19	.11	.30	.39	2.9	2.9
21...	16.0	.030	.00	.00	1.0	.00	.94	.94	4.0	4.0
SEP										
18...	.20	.010	.01	.26	.16	.26	.42	.68	6.0	4.7
18...	2.0	.020	.00	.27	.16	.40	.56	.83	5.0	2.1
18...	4.0	.030	.00	.27	.15	.30	.45	.72	5.1	2.2
18...	8.0	.020	.00	.27	.15	.39	.54	.81	5.7	3.2
18...	16.0	.040	.00	.02	.88	.42	1.3	1.3	3.2	2.4
OCT										
16...	.20	.020	.00	.42	.07	.20	.27	.69	2.6	2.6
16...	16.0	.090	.01	.59	.18	.24	.42	1.0	3.0	3.0
DEC										
11...	.20	.030	.01	.30	.04	.30	.34	.64	4.2	4.2
11...	16.0	.080	.01	.51	.14	.36	.50	1.0	2.5	2.1

CH-2.5B (02339402) Chattahoochee River below West Point Dam, 1978 and 1979

DATE	SAM-PLING DEPTH (M)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)
APR , 1978										
09...	.70	.030	.02	.31	.06	.25	.31	.62	4.8	1.9
MAY										
01...	.70	.030	.01	--	.14	.40	.54	--	6.2	4.1
01...	1.0	.030	.03	--	.15	.22	.37	--	7.1	6.8
30...	.70	.030	.00	.31	.13	.23	.36	.67	3.1	2.6
30...	1.0	.020	.01	--	.10	.21	.31	--	4.5	4.4
JUL										
09...	.70	.020	.01	--	.17	.17	.34	--	3.8	1.6
10...	1.0	.070	.05	--	.48	.13	.61	--	2.3	1.4
AUG										
13...	.70	.040	.02	--	.16	.94	1.1	--	4.8	2.4
14...	1.0	.030	.01	--	.36	.74	1.1	--	8.2	8.2
27...	.70	.020	.01	--	.08	.34	.42	--	4.1	4.1
28...	1.0	.020	.00	--	.15	.27	.42	--	3.7	3.1
OCT										
18...	.70	.080	.08	.53	.13	.34	.47	1.0	3.5	2.2
19...	1.0	.020	.00	.55	.13	.19	.32	.87	2.9	2.9
NOV										
27...	.70	.040	.04	.64	.19	.31	.50	1.1	3.9	1.6
28...	1.0	--	.02	.69	.16	.70	.86	1.6	1.1	1.1
JAN , 1979										
22...	1.0	.060	.03	.86	.23	.10	.33	1.2	3.9	3.7
MAR										
19...	1.0	.060	.04	.40	.14	.23	.37	.77	5.0	3.0
19...	.70	.060	.03	.39	.14	.26	.40	.79	3.6	3.6
APR										
30...	1.0	.070	.07	.28	.10	.18	.28	.56	6.2	3.6
MAY										
02...	.70	.040	.01	.31	.09	.18	.27	.58	5.2	5.2
JUN										
11...	.70	.010	.00	.10	.06	.31	.37	.47	2.8	2.8
11...	1.0	.010	.00	.27	.06	.41	.47	.74	3.9	3.9
JUL										
23...	.70	.030	.00	.10	.13	.34	.47	.57	3.7	3.2
23...	1.0	.040	.01	.07	.35	.30	.65	.72	4.3	2.1
AUG										
20...	.70	.040	.01	.04	.50	.13	.63	.67	5.4	3.9
20...	1.0	.040	.01	.05	.47	.32	.79	.84	3.5	2.6
SEP										
16...	.70	.030	.00	.06	.15	.46	.61	.69	5.1	5.0
17...	1.0	.020	.00	.07	.21	.63	.84	.91	2.8	2.8
OCT										
14...	.70	.030	.00	.50	.09	.55	.64	1.1	4.6	4.6
15...	1.0	.030	.00	.54	.05	.26	.31	.85	2.2	2.1
DEC										
09...	.70	.040	.01	.55	.21	.16	.37	.92	3.	2.7
10...	1.0	.040	.00	.51	.11	.55	.66	1.2	2.4	2.4

CH-01A (02339500) Chattahoochee River at West Point, Ga., 1978 and 1979

DATE	SAMPLING DEPTH (M)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DISSOLVED (MG/L AS C)
APR , 1978										
09...	.70	.030	.02	.23	.02	.22	.24	.47	2.4	2.0
13...	1.0	.030	.01	--	.10	.16	.26	--	6.6	3.6
MAY										
01...	1.0	.030	.02	.03	.13	.30	.43	.46	5.2	2.7
14...	.70	.070	.07	--	.11	.35	.46	--	6.1	4.6
30...	.70	.030	.00	--	.10	.24	.34	--	6.5	1.5
30...	1.0	.030	.01	--	.13	.23	.36	--	3.0	.6
JUL										
09...	.70	.020	.01	--	.13	.18	.31	--	2.7	2.4
10...	1.0	.060	.01	--	.36	.26	.62	--	2.6	2.1
AUG										
13...	.70	.030	.01	--	.11	.25	.36	--	3.2	2.7
14...	1.0	.030	.01	--	.41	.35	.76	--	8.0	1.6
27...	.70	.040	.02	--	.04	.37	--	--	5.0	4.8
28...	1.0	.040	.01	--	.16	.21	.37	--	4.6	4.6
OCT										
18...	.70	.020	.00	.76	.13	.32	.45	1.2	2.5	2.5
19...	1.0	.020	.01	.55	.13	.28	.41	.96	2.8	1.5
JAN , 1979										
22...	1.0	.060	.03	.82	.22	.10	.32	1.1	4.2	2.5
MAR										
19...	1.0	.070	.04	.40	.14	.21	.35	.75	4.1	4.1
19...	.70	.040	.03	.39	.13	.27	.40	.79	4.1	3.8
APR										
30...	1.0	.040	.00	.28	.09	.14	.23	.51	3.8	3.8
MAY										
02...	.70	.040	.00	.24	.06	.24	.30	.54	4.0	4.0
JUN										
11...	.70	.010	.00	.22	.07	.23	.30	.52	2.6	2.6
11...	1.0	.020	.00	.27	.06	.31	.37	.64	2.2	2.2
JUL										
23...	.70	.030	.00	.08	.10	.31	.41	.49	3.4	2.9
23...	1.0	.040	.01	.07	.34	.38	.72	.79	3.1	2.0
AUG										
20...	.70	.040	.01	.05	.46	.11	.57	.62	4.8	1.9
20...	1.0	.030	.00	.05	.40	.14	.54	.59	2.9	2.9
SEP										
16...	.70	.020	.00	.11	.15	.37	.52	.63	2.8	2.8
17...	1.0	.030	.01	.07	.21	.47	.68	.75	2.5	2.5
OCT										
14...	.70	.020	.00	.50	.05	.57	.62	1.1	2.7	2.7
15...	1.0	.030	.00	.55	.05	.28	.33	.88	3.2	3.2
DEC										
09...	.70	.030	.01	.53	.14	.42	.56	1.1	2.5	2.1
10...	1.0	.040	.00	.51	.11	1.1	1.2	1.7	2.9	1.9

CH-01B (02339550) Chattahoochee River (city of Lanett intake) at Lanett, Ala., 1978 and 1979

DATE	SAM-PLING DEPTH (M)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)
APR , 1978										
09...	.70	.050	.01	.29	.01	.03	.04	.33	2.7	2.5
13...	1.0	.030	.01	--	.09	.17	.26	--	5.2	2.7
MAY										
01...	1.0	.030	.01	--	.13	.22	.35	--	6.5	2.4
14...	.70	.030	.03	--	.08	.27	.35	--	9.6	4.9
30...	.70	.030	.00	--	.08	.18	.26	--	9.1	5.2
30...	1.0	.030	.01	--	.13	.27	.40	--	5.2	4.6
JUL										
09...	.70	.020	.00	--	.09	.23	.32	--	3.0	2.8
10...	1.0	.050	--	--	.40	.14	.54	--	2.9	2.3
AUG										
13...	.70	.030	.01	--	.14	.40	.54	--	4.5	2.2
14...	1.0	.040	.00	--	.46	.22	.68	--	13	1.6
27...	.70	.020	.01	--	.03	.32	.35	--	5.8	4.7
28...	1.0	.030	.00	--	.19	.16	.35	--	4.1	2.6
OCT										
18...	.70	.020	.01	.54	.13	.26	.39	.93	8.2	2.0
19...	1.0	.020	.02	.56	.13	.23	.36	.92	3.7	3.7
NOV										
27...	.70	.030	.01	.64	.15	.19	.34	.98	1.6	1.6
28...	1.0	.030	.03	.65	.14	.24	.38	1.1	1.6	1.6
JAN , 1979										
22...	1.0	.060	.03	.84	.22	.08	.30	1.1	3.9	3.9
MAR										
19...	1.0	.070	.04	.40	.14	.22	.36	.76	4.1	4.1
19...	.70	.060	.03	.39	.13	.31	.44	.83	4.0	4.0
APR										
30...	1.0	.050	.01	.28	.09	.10	.19	.47	4.6	4.6
MAY										
02...	.70	.050	.00	.28	.06	.37	.43	.71	4.3	--
JUN										
11...	.70	.010	.00	.25	.06	.22	.28	.53	2.3	2.2
11...	1.0	.010	.01	.28	.06	.25	.31	.59	2.4	2.4
JUL										
23...	.70	.030	.00	.08	.09	.30	.39	.47	3.9	2.4
23...	1.0	.030	.01	.06	.30	.30	.60	.66	3.2	2.9
AUG										
20...	.70	.040	.01	.06	.31	.17	.48	.54	10	10
20...	1.0	.030	.00	.05	.41	.12	.53	.58	4.9	2.0
SEP										
16...	.70	.020	.00	.12	.12	.35	.47	.59	4.3	4.3
17...	1.0	.020	.01	.07	.20	.67	.87	.94	2.1	2.1
OCT										
14...	.70	.020	.00	.50	.07	.43	.50	1.0	2.4	2.3
15...	1.0	.030	.00	.57	.05	.23	.28	.85	2.0	2.0
DEC										
09...	.70	.030	.01	.50	.09	.31	.40	.90	2.2	1.9
10...	1.0	.050	.00	.78	.30	.27	.57	1.4	2.4	2.3

CH-01C (02339560) Chattahoochee River above junction of Long Cane Creek, near West Point, Ga., 1978 and 1979

DATE	SAM- PLING DEPTH (M)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)
APR , 1978										
09...	.70	.060	.02	.31	.00	.07	.07	.38	5.0	4.3
MAY										
01...	1.0	.030	.01	--	.13	--	--	--	4.8	3.2
14...	.70	.030	.03	--	.13	.23	.36	--	12	4.5
30...	.70	.070	.05	--	.09	.22	.31	--	4.5	3.4
30...	1.0	.040	.01	--	.13	.28	.41	--	7.0	5.4
JUL										
09...	.70	.040	.02	--	.07	.14	.21	--	3.0	2.8
10...	1.0	.040	.01	--	.19	.22	.41	--	3.8	2.0
AUG										
13...	.70	.050	.01	--	.14	.36	.50	--	5.3	3.8
14...	1.0	.040	.01	--	.44	.15	.59	--	26	14
27...	.70	.030	.02	--	.02	.29	.31	--	6.0	6.0
28...	1.0	.060	.03	--	.16	.15	.31	--	5.7	4.8
OCT										
18...	.70	.030	.01	.53	.12	.20	.32	.85	3.5	3.5
NOV										
27...	.70	.060	.02	.67	.16	.37	.53	1.2	2.1	2.3
28...	1.0	.040	.03	.67	.13	.28	.41	1.1	1.8	1.8
JAN , 1979										
22...	1.0	.070	.03	.82	.21	.08	.29	1.1	6.9	3.2
MAR										
19...	1.0	.060	.04	.40	.13	.30	.43	.83	4.4	3.4
19...	.70	.070	.04	.39	.13	.24	.37	.76	4.3	3.0
APR										
30...	1.0	.040	.01	.28	.06	.17	.23	.51	5.6	5.6
MAY										
02...	.70	.060	.02	.28	.06	.26	.32	.60	3.2	3.2
JUN										
11...	.70	.040	.01	.27	.02	.19	.21	.48	2.7	2.5
11...	1.0	.020	.01	.31	.06	.22	.28	.59	2.7	2.0
JUL										
23...	.70	.060	.02	.12	.18	.28	.46	.58	4.4	3.2
23...	1.0	.040	.01	.10	.25	.27	.52	.62	3.3	2.5
AUG										
20...	.70	.030	.00	.10	.17	.25	.42	.52	3.6	2.8
20...	1.0	.040	.00	.05	.40	.18	.58	.63	3.5	3.5
SEP										
16...	.70	.030	.00	.12	.12	.29	.41	.53	2.4	2.4
17...	1.0	.050	.01	.09	.26	.53	.79	.88	2.5	2.5
OCT										
14...	.70	.030	.00	.49	.05	.30	.35	.84	2.5	2.5
15...	1.0	.040	.00	.55	.05	.35	.40	.95	2.0	1.8
DEC										
09...	.70	.050	.02	.52	.10	.32	.42	.94	3.8	2.9
10...	1.0	.050	.00	.51	.09	.90	.99	1.5	2.4	2.4

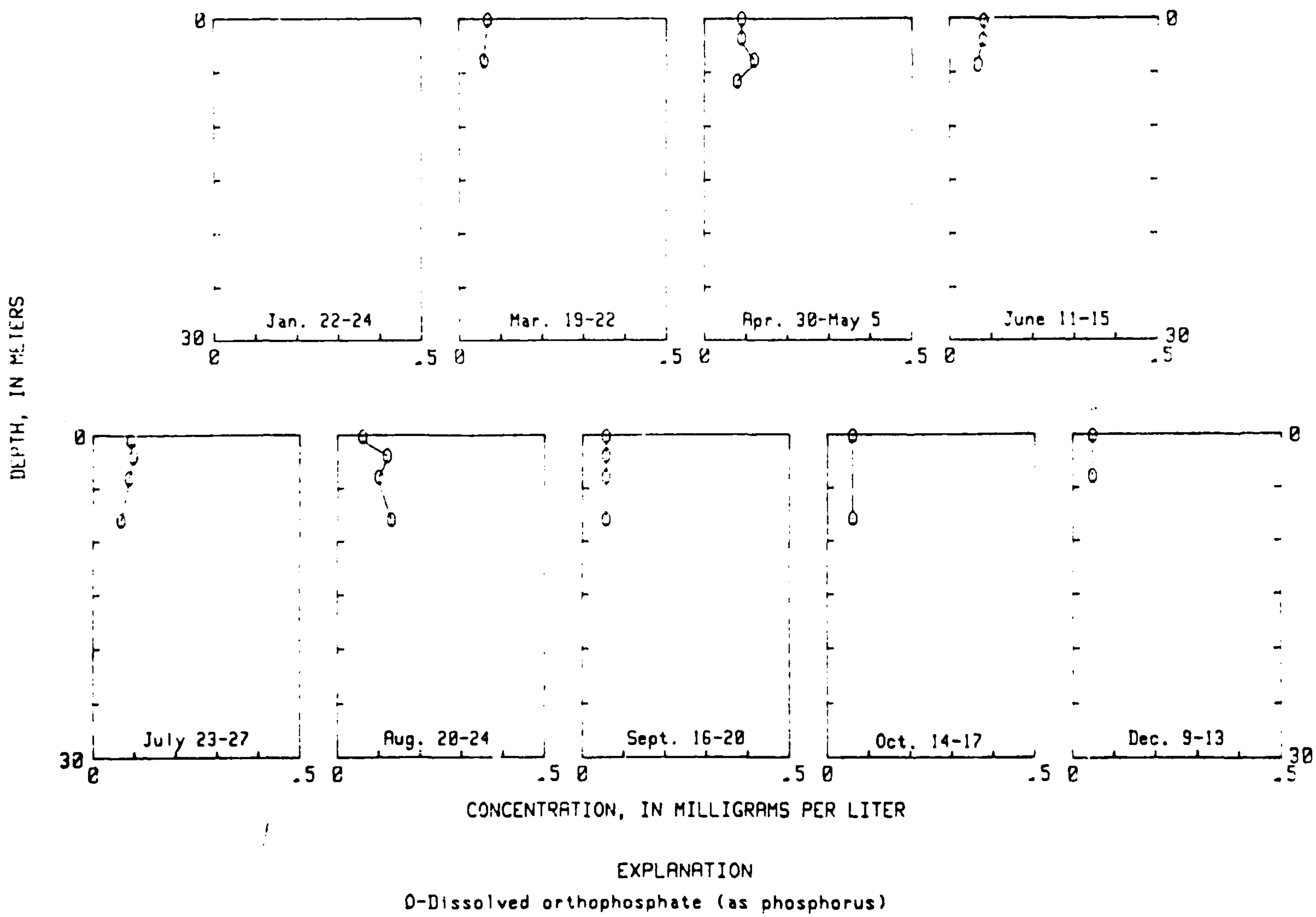
CH-U1D (02339780) Chattahoochee River at Langdale, Ala., 1978 and 1979

DATE	SAMPLING DEPTH (M)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DISSOLVED (MG/L AS C)
APR., 1978										
09...	.70	.100	.04	.29	.00	.10	.10	.39	3.3	2.7
MAY										
01...	1.0	.040	.02	--	.11	.27	.38	--	6.8	4.2
14...	.70	.060	.06	--	.08	.16	.24	--	7.9	4.8
30...	.70	.100	.07	--	.10	.22	.32	--	6.0	4.3
30...	1.0	.050	.01	--	.10	.31	.41	--	5.4	5.2
JUL										
09...	.70	.060	.01	--	.09	.17	.26	--	5.6	1.7
10...	1.0	.090	.04	--	.32	.23	.55	--	2.7	1.9
AUG										
13...	.70	.120	.04	--	.25	.62	.87	--	4.2	2.5
14...	1.0	.050	.00	--	.46	.38	.84	--	8.4	8.0
27...	.70	.070	.01	--	.02	.34	.36	--	4.4	4.2
28...	1.0	.030	.02	--	.16	.20	.36	--	9.0	4.5
OCT										
18...	.70	.020	.01	.54	.12	--	--	--	3.9	3.9
19...	1.0	.040	.01	.56	.11	.18	.29	.85	2.4	2.4
NOV										
27...	.70	.040	.04	.64	.15	.31	.46	1.1	2.5	2.5
28...	1.0	.060	.04	.62	.10	.32	.42	1.0	2.4	2.4
JAN., 1979										
22...	1.0	.070	.03	.82	.19	.10	.29	1.1	3.8	3.8
MAR										
19...	1.0	.080	.04	.41	.13	.29	.42	.83	4.3	4.3
19...	.70	.070	.04	.41	.10	.32	.42	.83	4.3	3.5
APR										
30...	1.0	.070	.06	.29	.06	.22	.28	.57	2.9	2.9
MAY										
02...	.70	.060	.01	.29	.06	.25	.31	.60	6.4	6.4
JUN										
11...	.70	.060	.05	.26	.00	.25	.25	.51	2.8	2.8
11...	1.0	.020	.01	.32	.05	.19	.24	.56	2.1	2.0
JUL										
23...	.70	.100	.03	.14	.14	.35	.49	.63	5.9	4.7
23...	1.0	.070	.00	.10	.05	.40	.45	.55	4.0	3.2
AUG										
20...	1.0	.040	.00	.07	.38	.15	.53	.60	2.9	2.9
23...	.70	.050	.00	.10	.10	.13	.23	.33	3.1	3.1
SEP										
16...	.70	.040	.00	.12	.12	.39	.51	.63	2.9	2.9
17...	1.0	.030	.00	.10	.24	.61	.85	.95	3.5	3.5
OCT										
14...	.70	.070	.03	.52	.06	.29	.35	.87	6.6	6.6
15...	1.0	.040	.00	.57	.04	.31	.35	.92	2.4	2.3
DEC										
09...	.70	.070	.03	.50	.11	.22	.33	.83	2.6	2.6
10...	1.0	.050	.00	.51	.08	.30	.38	.89	2.3	2.3

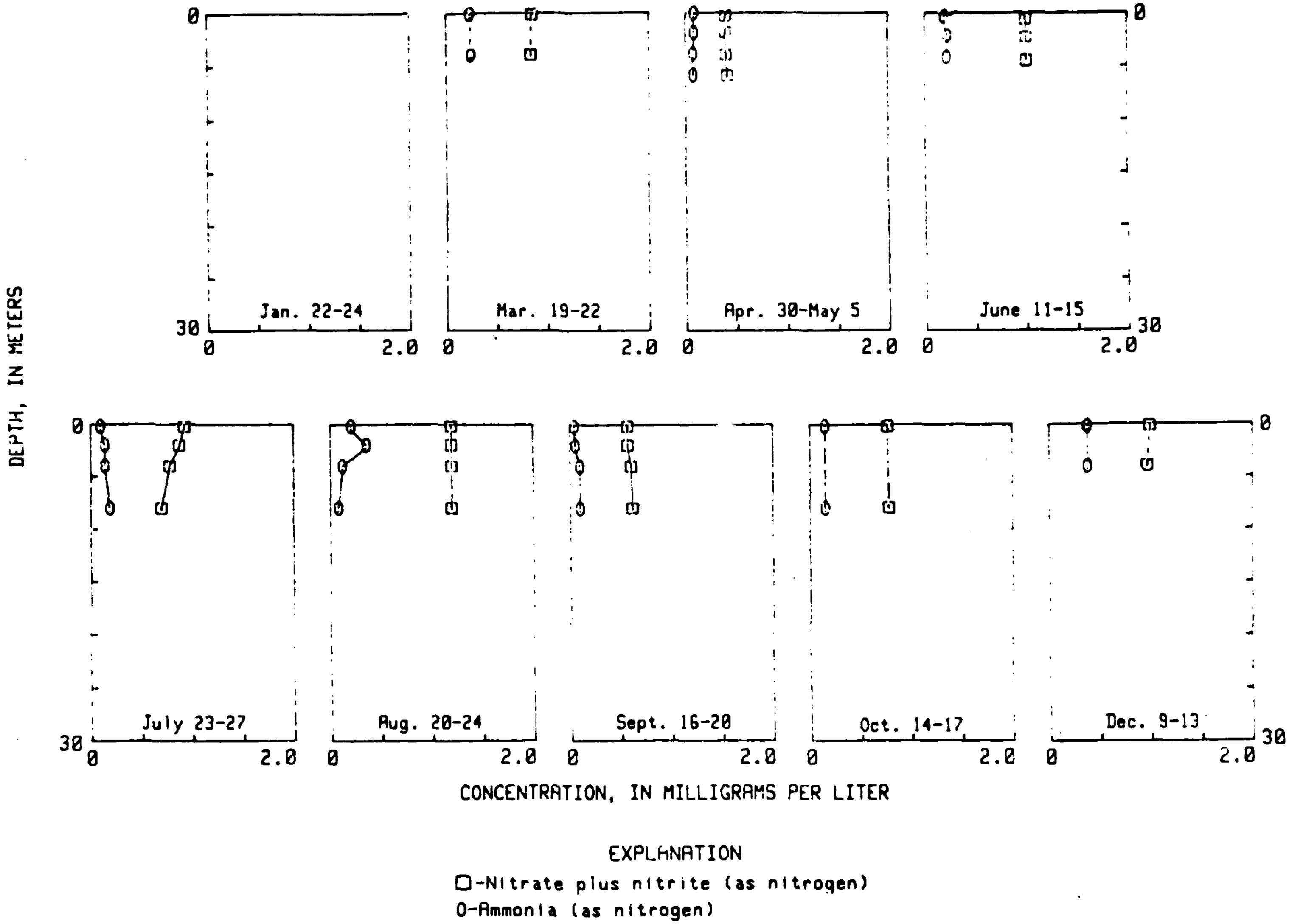
APPENDIX C-8

Graphs showing variations in nutrient concentrations with reservoir depth at stations in West Point Reservoir, April 1978-December 1979

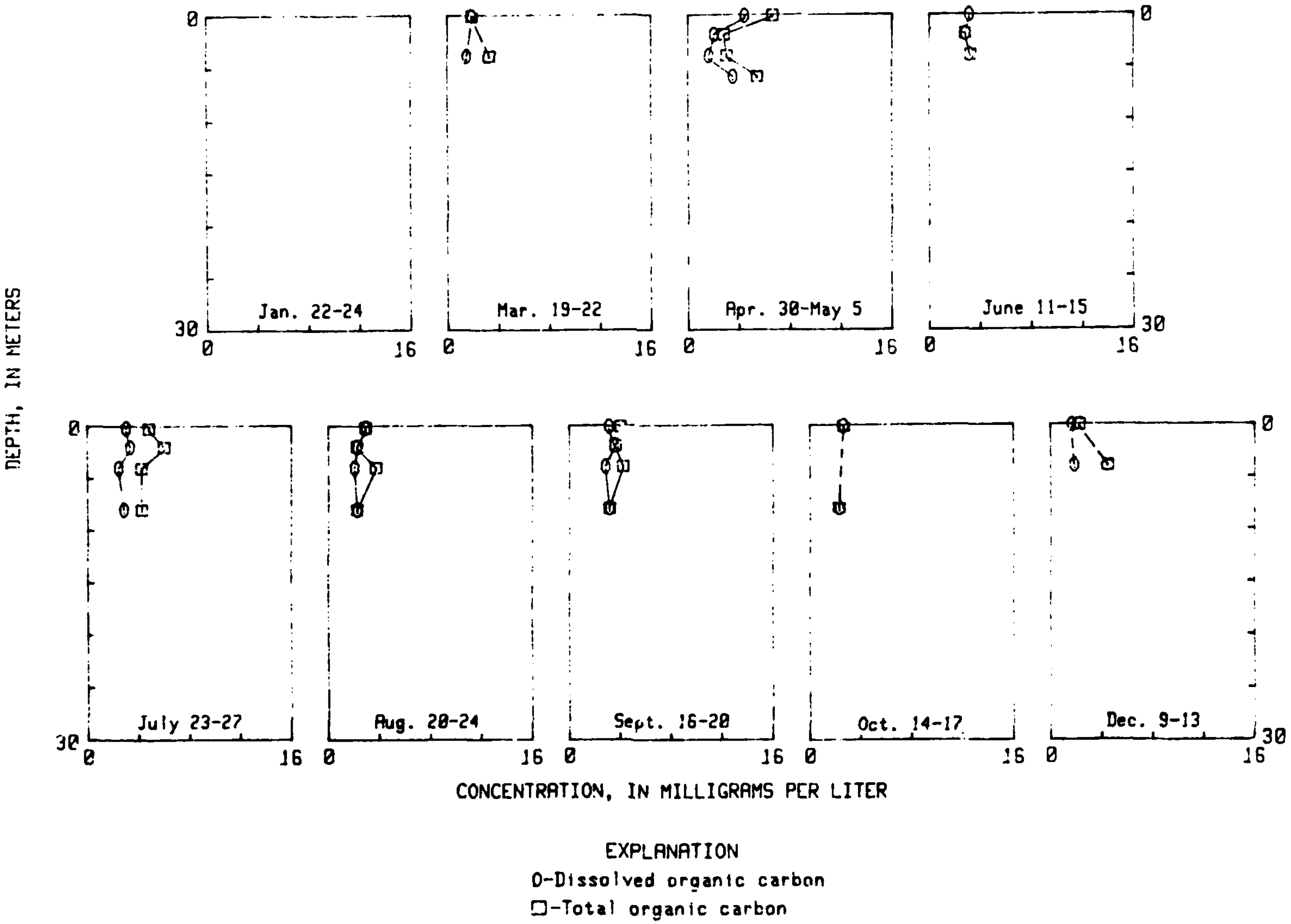
[Phosphorus, orthophosphate, dissolved; phosphorus, total; nitrogen, nitrite plus nitrate, total; nitrogen, ammonia, total; carbon, organic, dissolved; and carbon, organic, total]



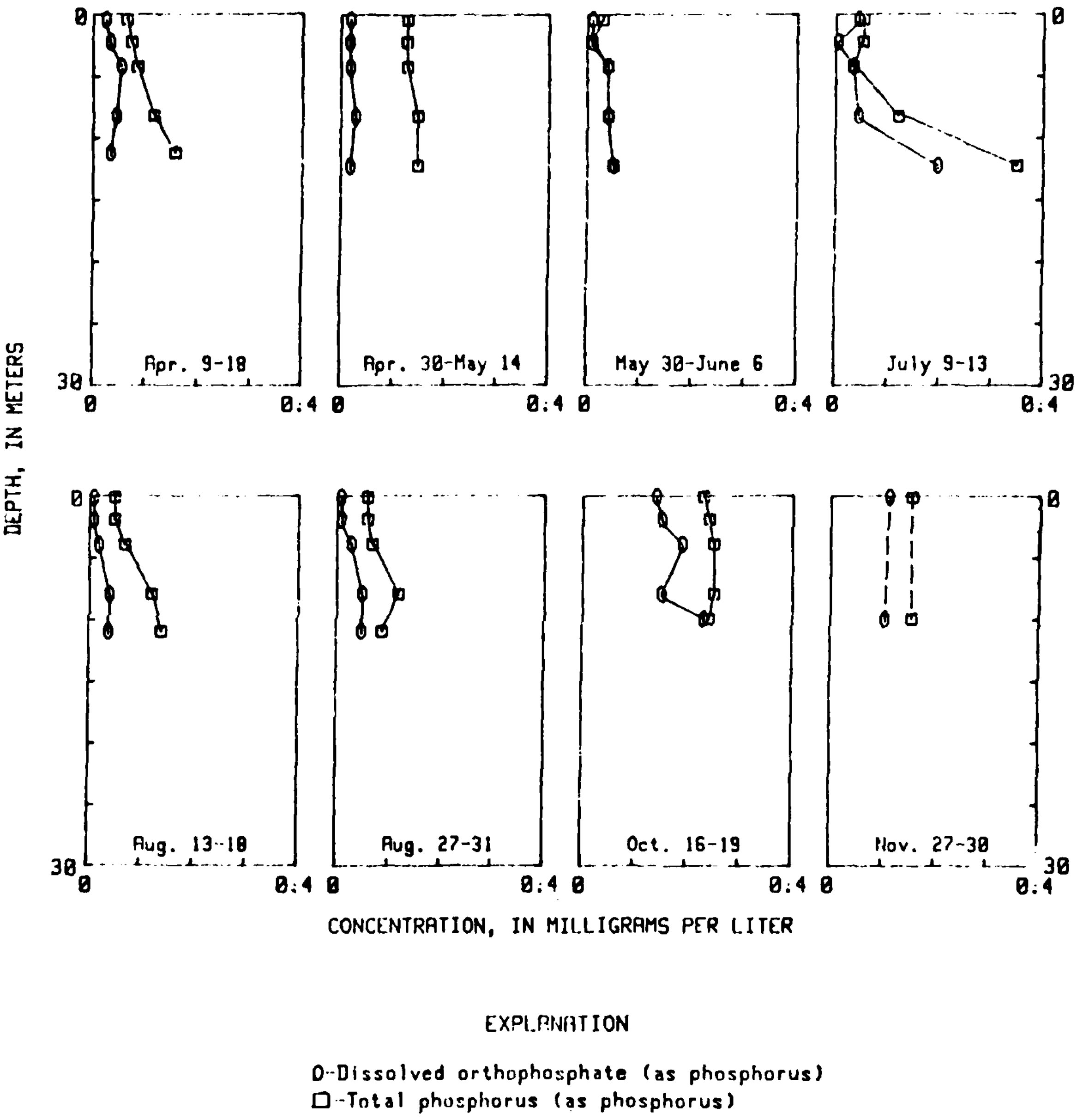
CH-11A (02338570) Chattahoochee River above New River, near Corinth, Ga., 1979



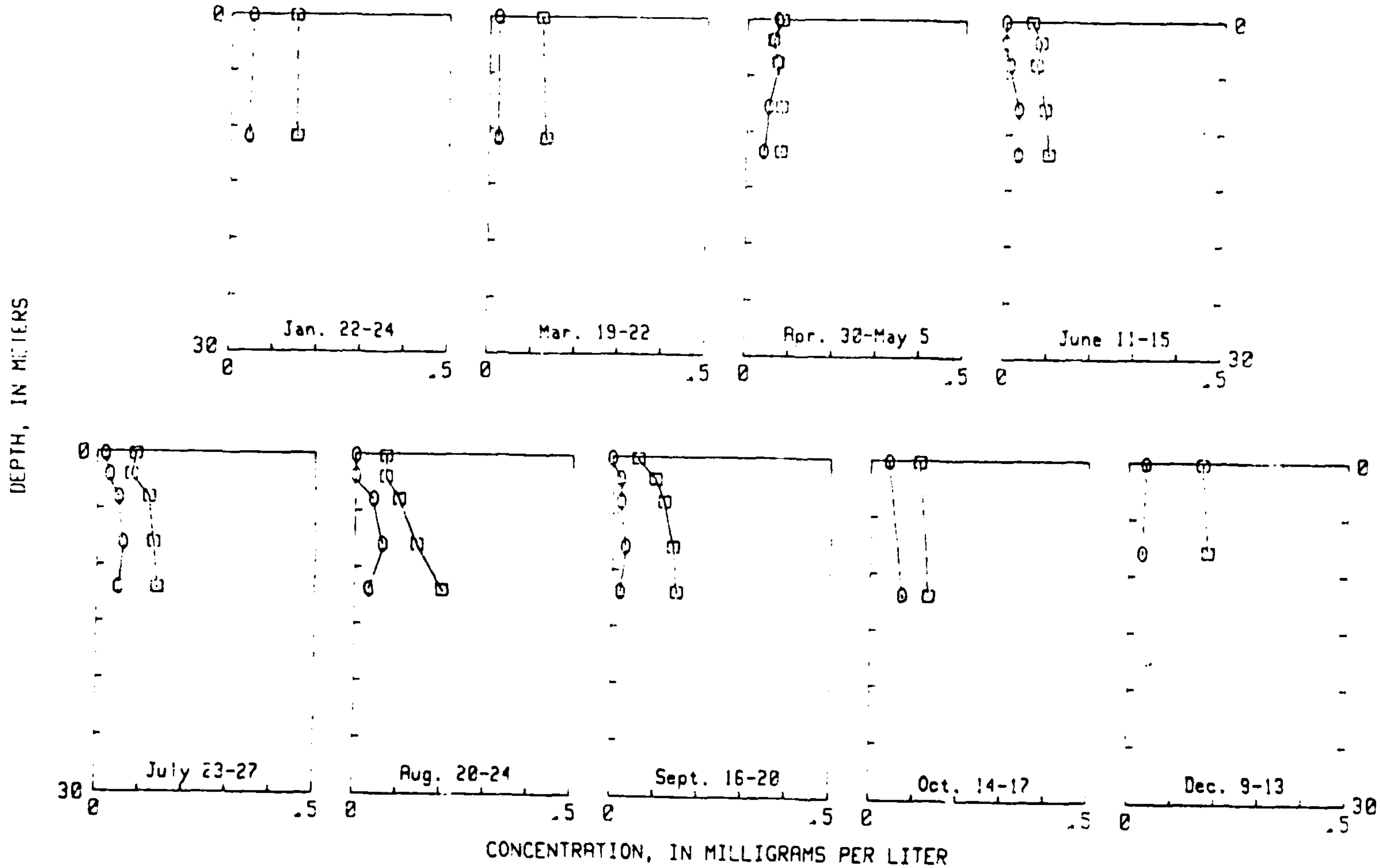
CH-11A (02338570) Ch..ttahoochee River above New River, near Corinth. Ga., 1979



CH-11A (02338570) Chattahoochee River above New River, near Corinth, Ga., 1979



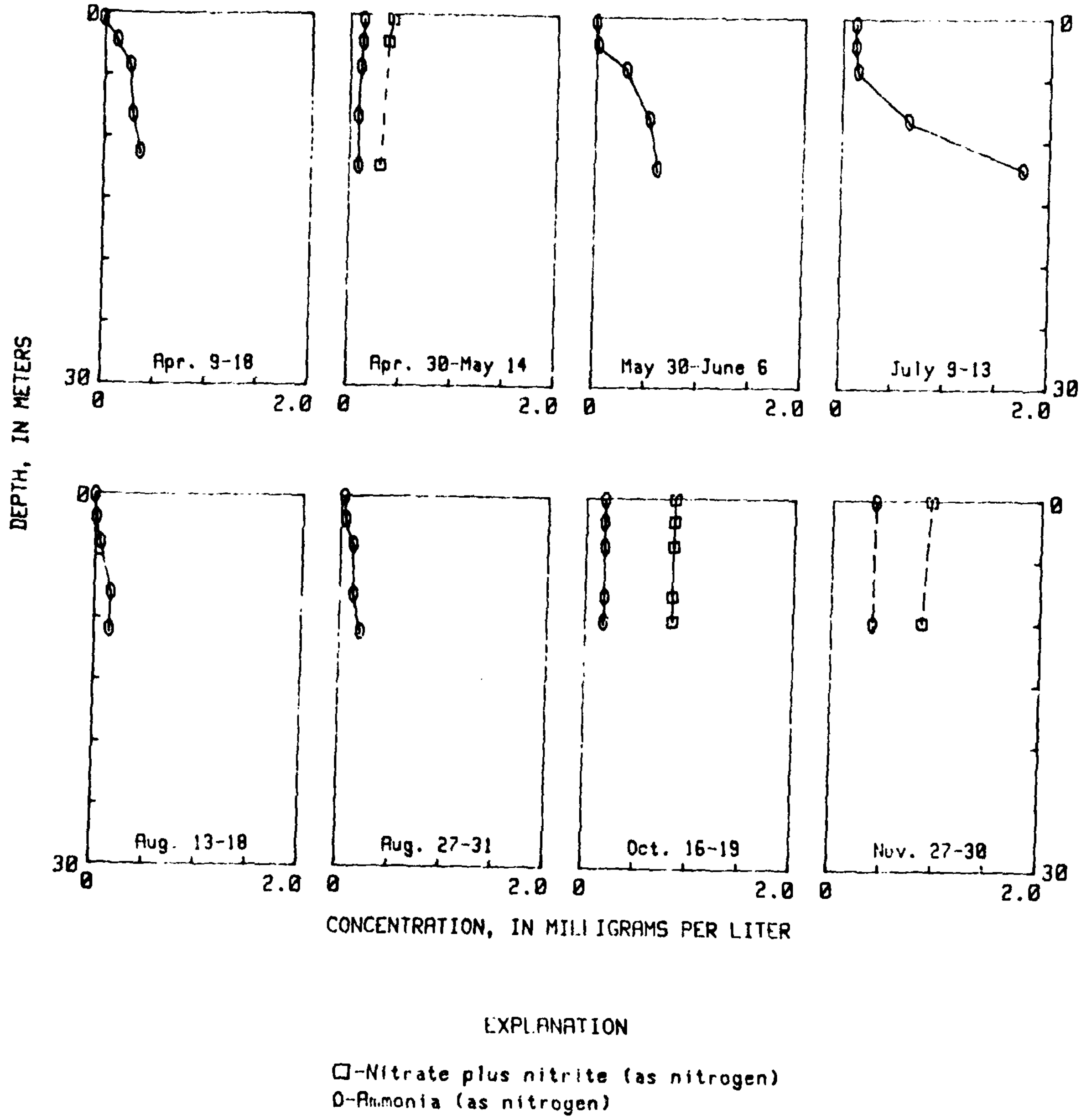
CH-10 (02338710) Chattahoochee River at State Highway 219, near LaGrange, Ga., 1978



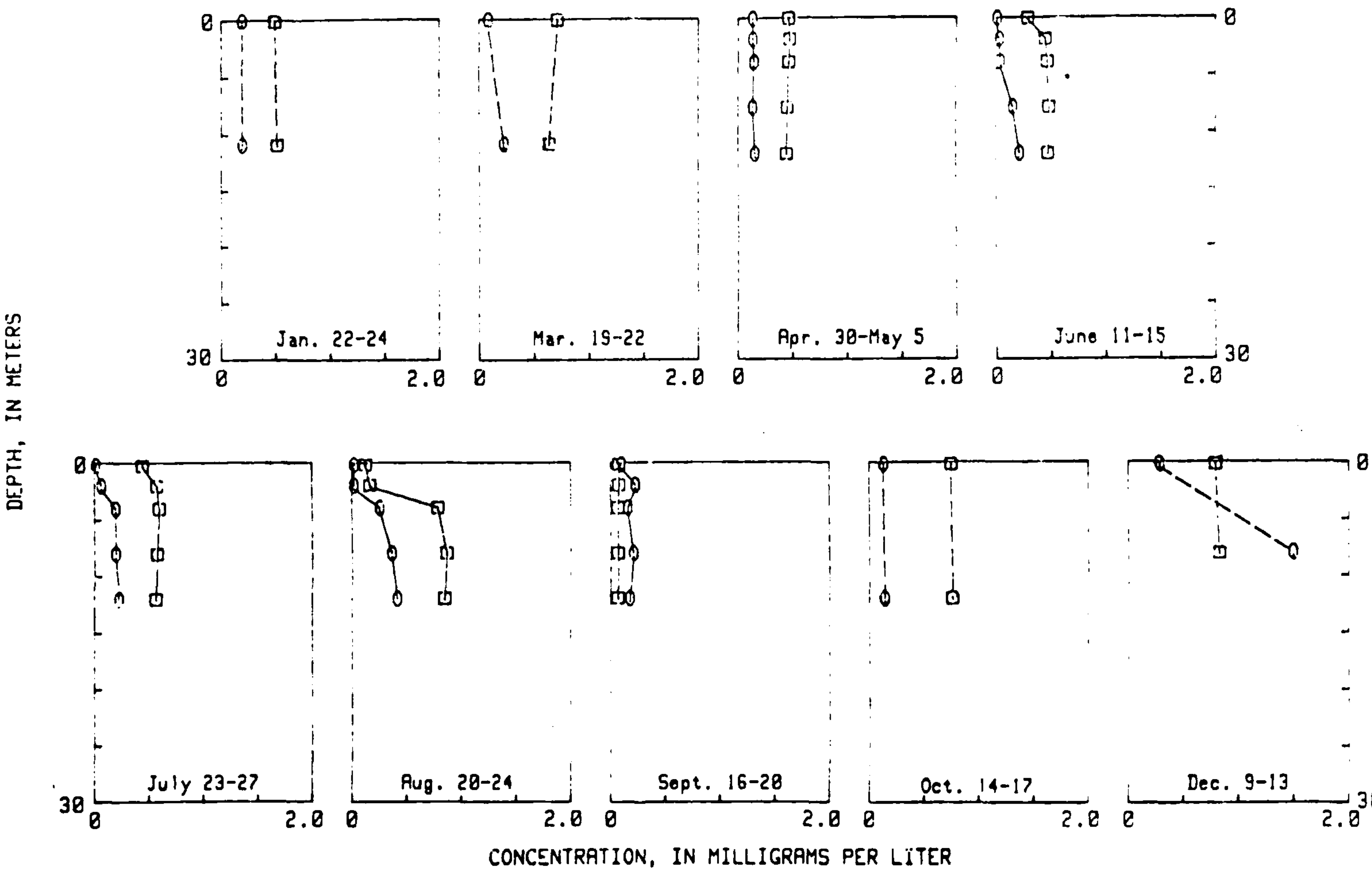
EXPLANATION

O-Dissolved orthophosphate (as phosphorus)
□-Total phosphorus (as phosphorus)

CH-10 (02339710) Chattahoochee River at State Highway 219, near LaGrange, Ga., 1979



CH-10 (02338710) Chattahoochee River at State Highway 219, near LaGrange, Ga., 1978

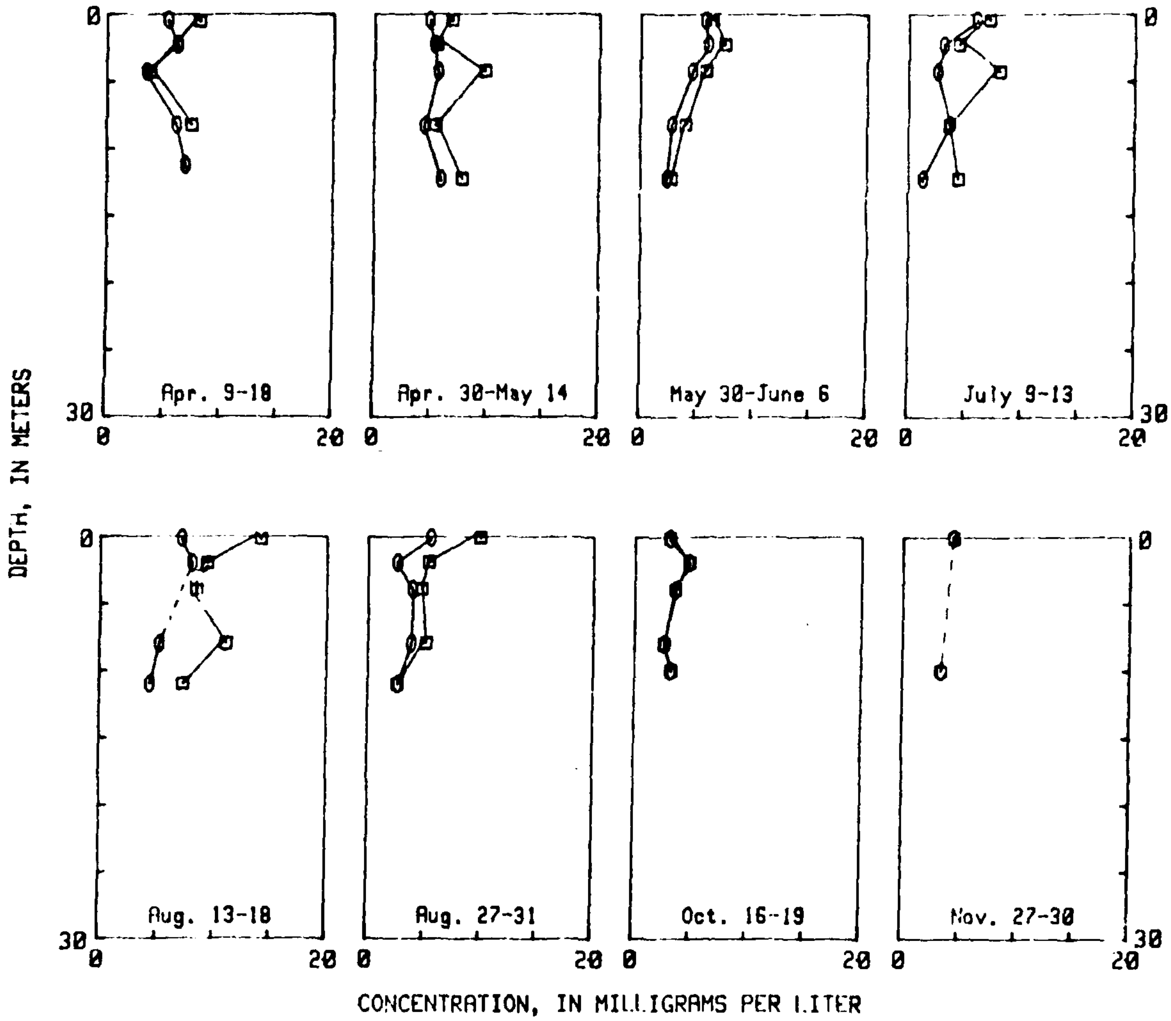


EXPLANATION

□-Nitrate plus nitrite (as nitrogen)

O-Ammonia (as nitrogen)

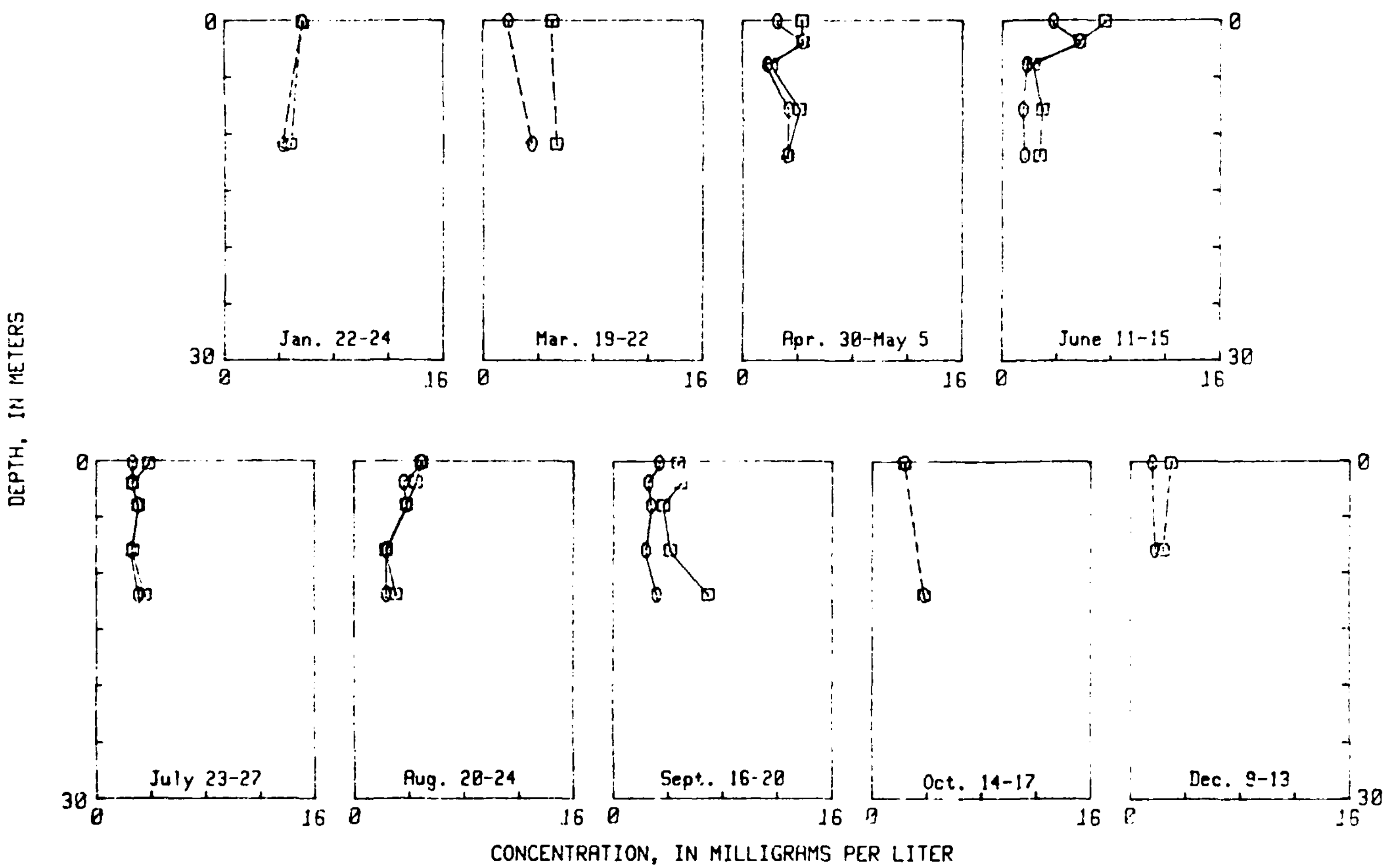
CH-10 (02338710) Chattahoochee River at State Highway 219, near LaGrange, Ga., 1979



EXPLANATION

0-Dissolved organic carbon
□-Total organic carbon

CH-10 (02338710) Chattahoochee River at State Highway 219, near LaGrange, Ga., 1978

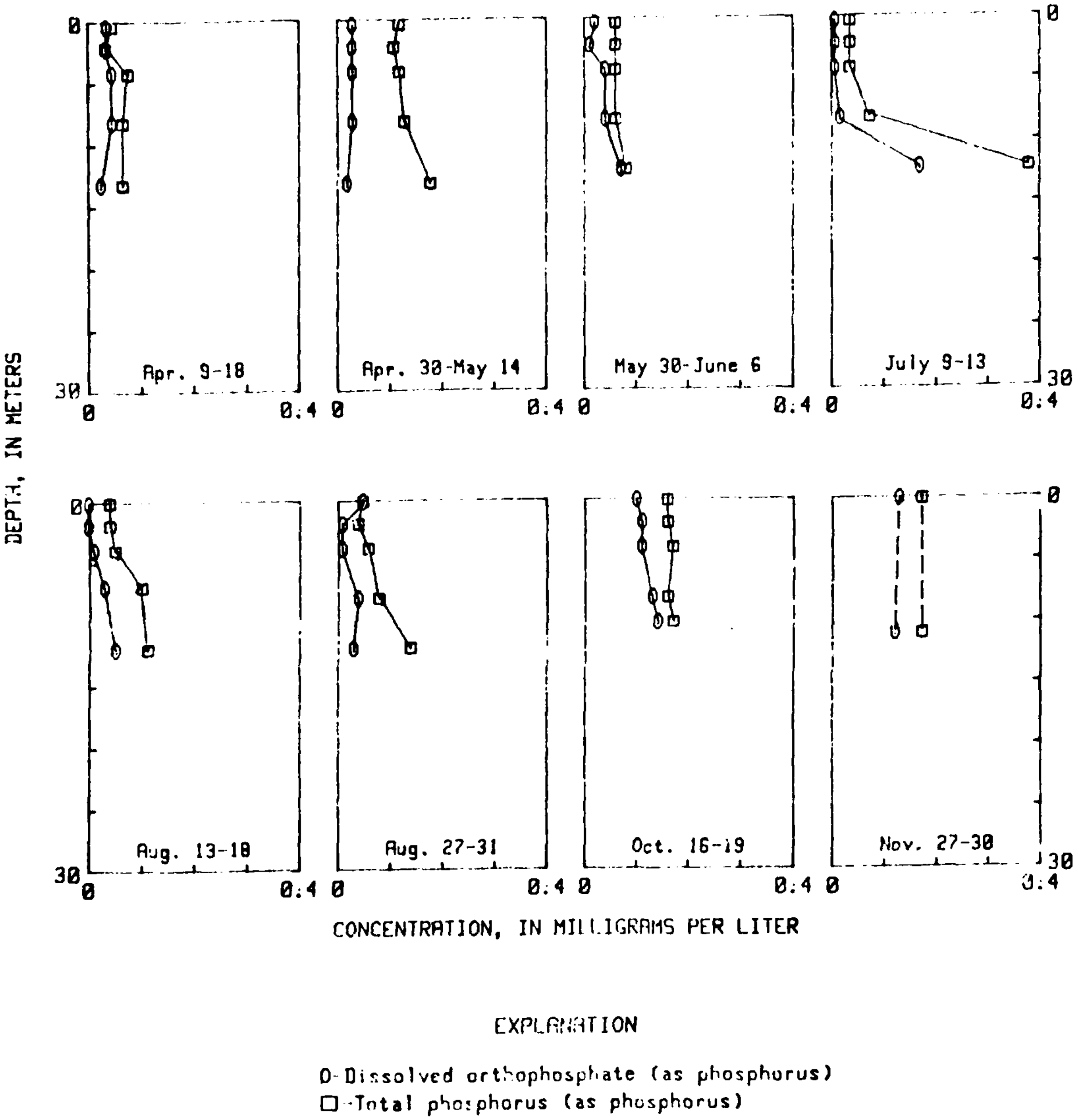


EXPLANATION

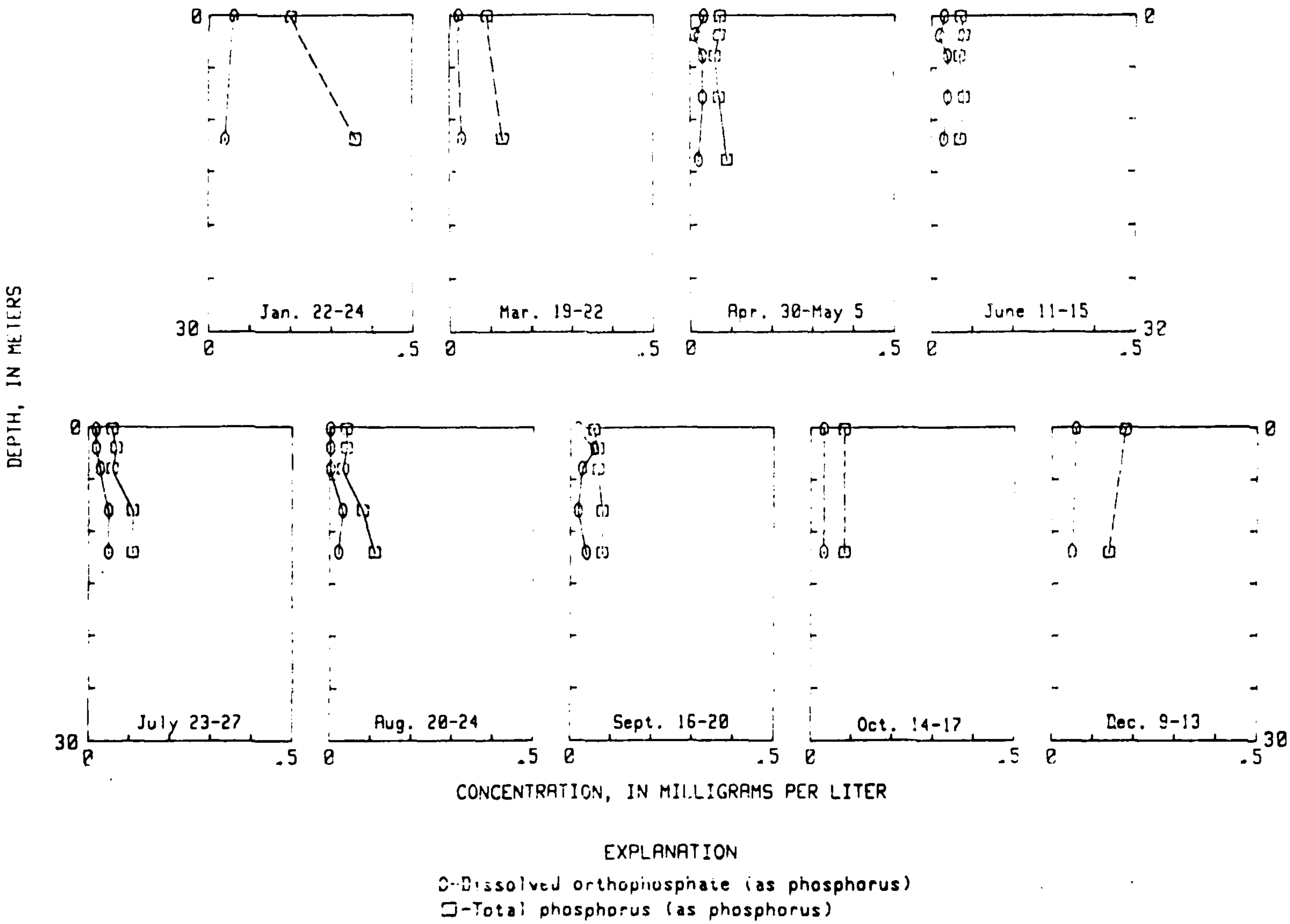
O-Dissolved organic carbon

□-Total organic carbon

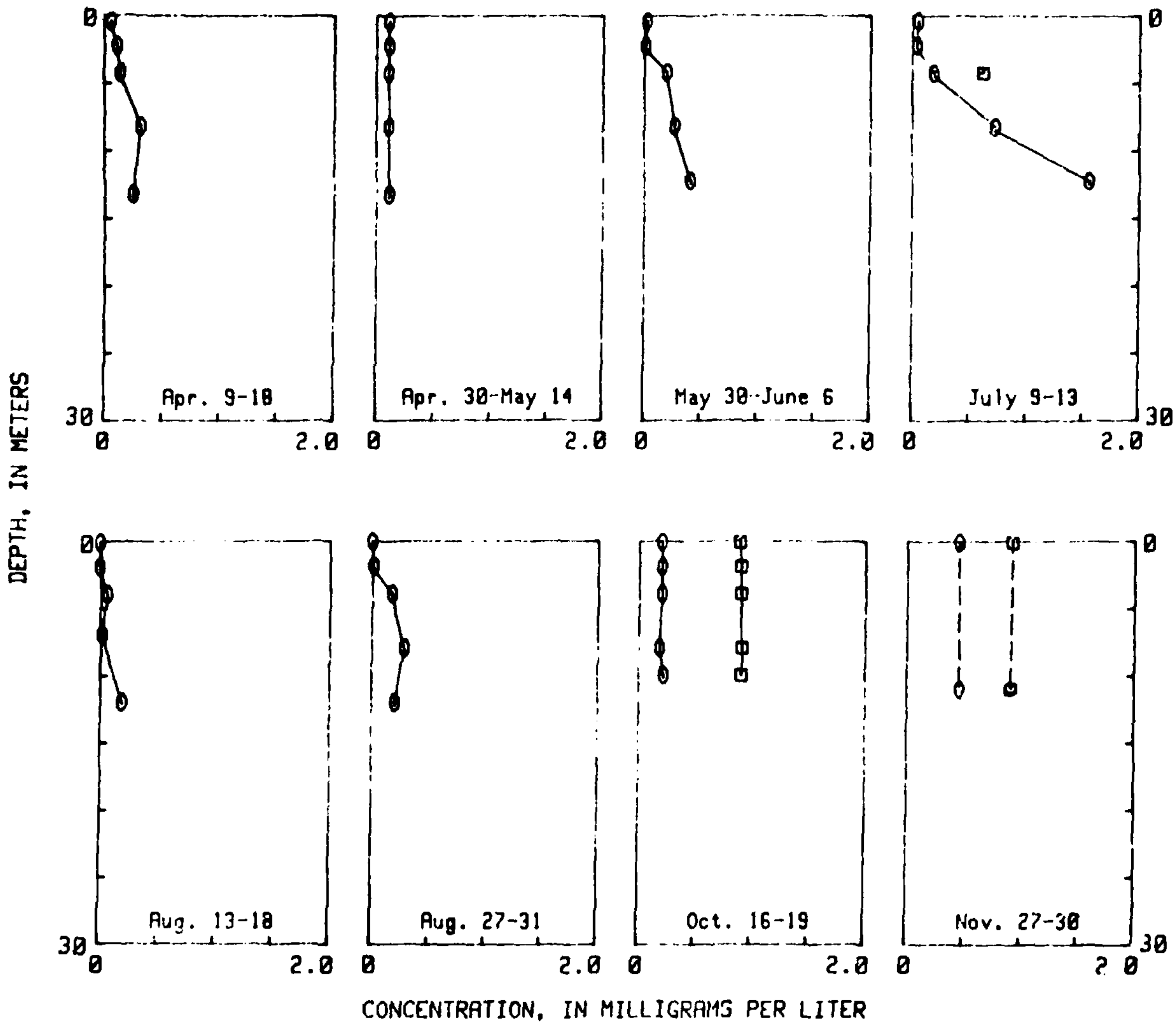
CH-10 (02338710) Chattahoochee River at State Highway 219, near LaGrange, Ga., 1979



CH-07 (02338720) Chattahoochee River (city of LaGrange intake)
near LaGrange, Ga., 1978



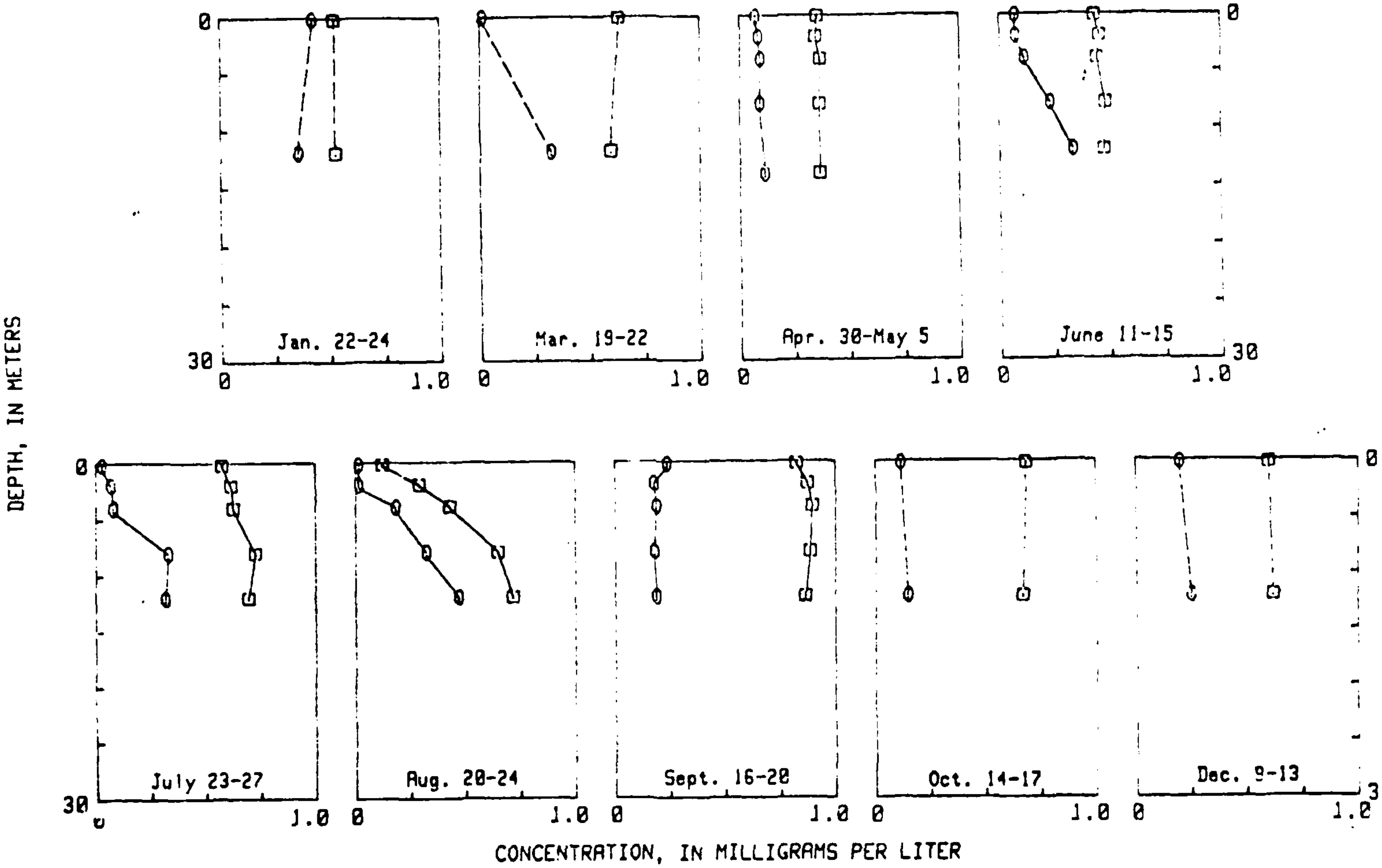
CH-07 (02338720) Chattahoochee River (city of LaGrange intake) near LaGrange, Ga., 1979



EXPLANATION

□--Nitrate plus nitrite (as nitrogen)
O--Ammonia (as nitrogen)

CH-07 (02338720) Chattahoochee River (city of LaGrange intake) near LaGrange, Ga., 1978

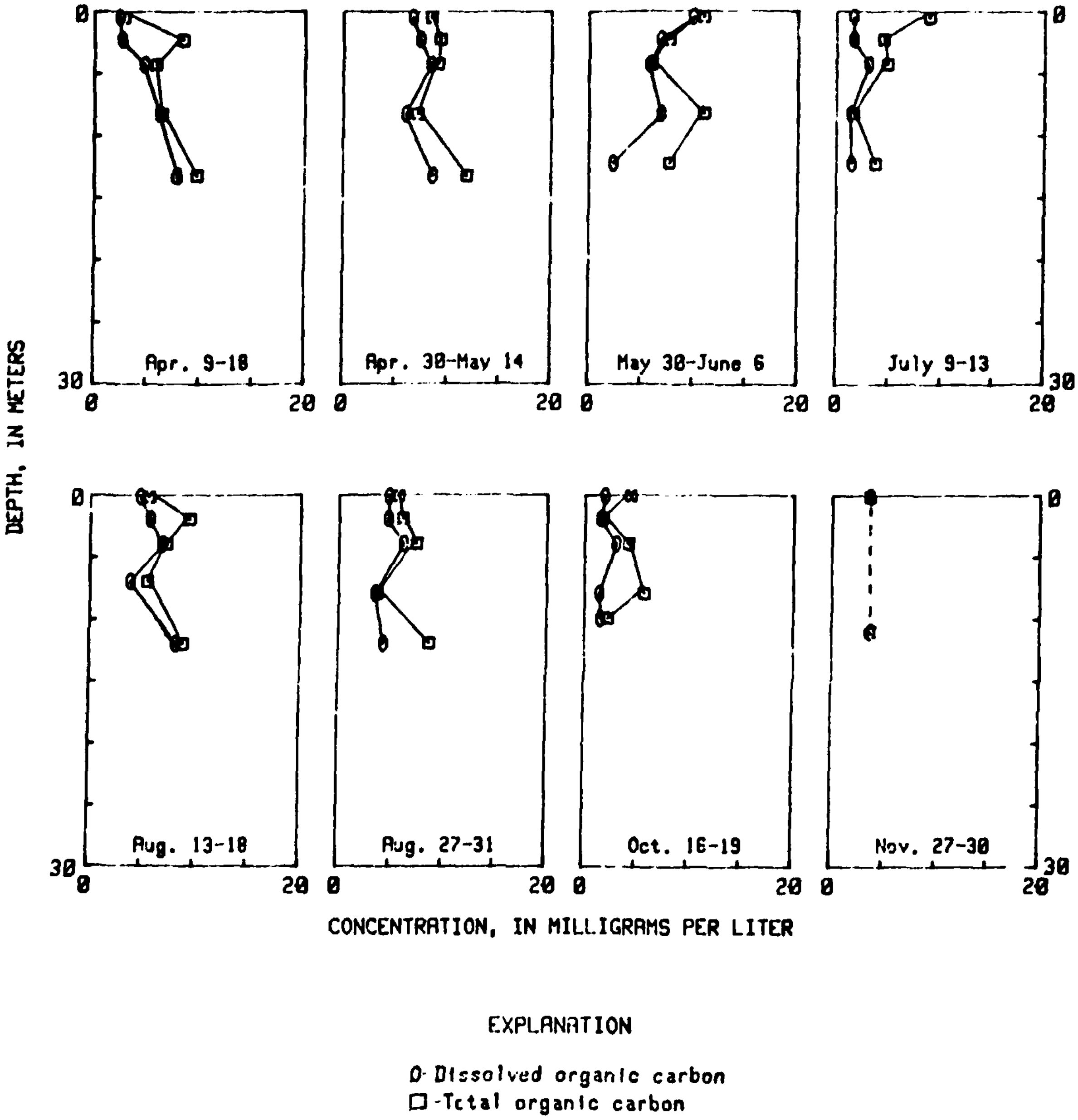


EXPLANATION

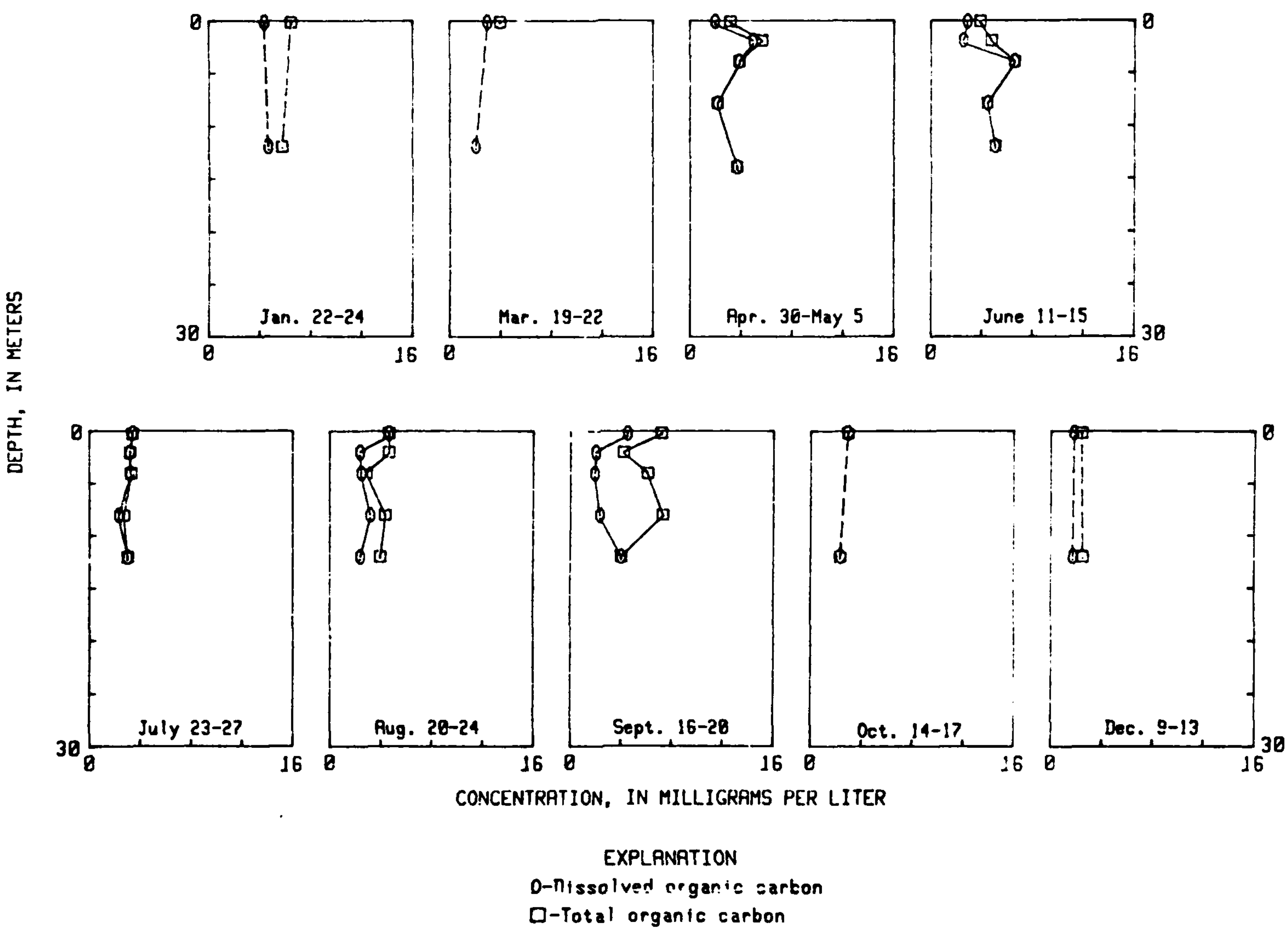
□-Nitrate plus nitrite (as nitrogen)

O-Ammonia (as nitrogen)

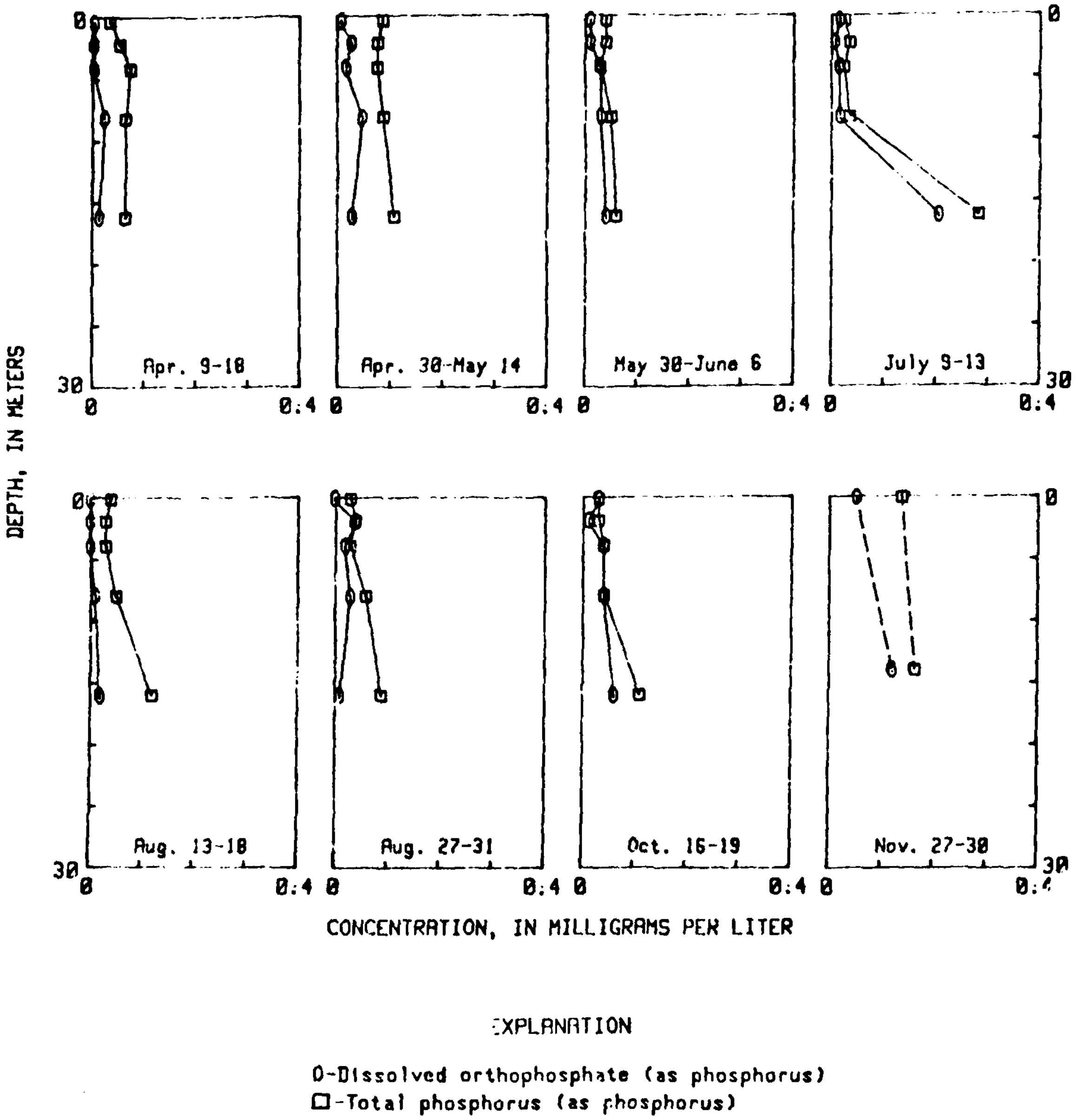
CH-07 (02338720) Chattahoochee River (city of LaGrange intake) near LaGrange, Ga., 1979



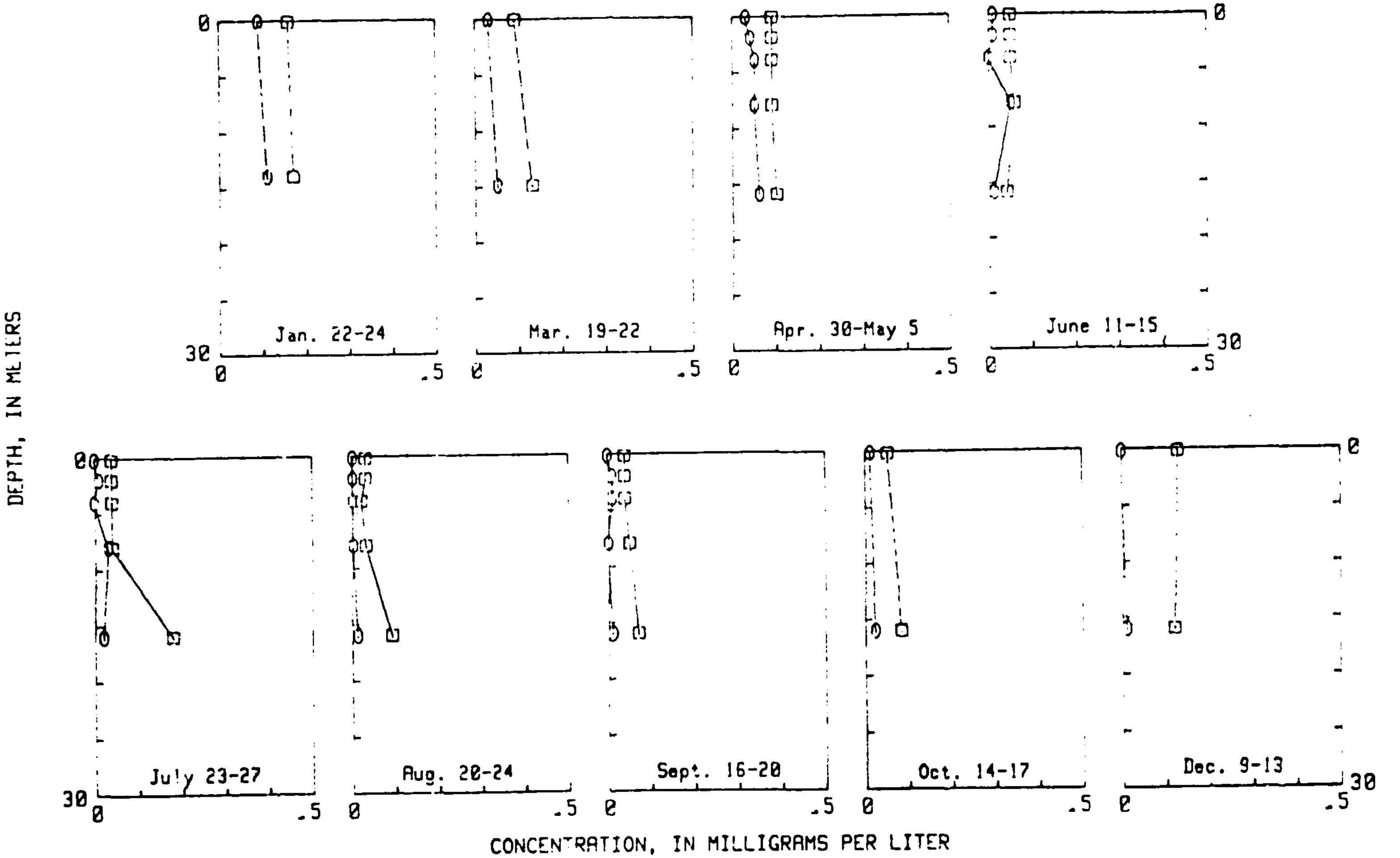
CH-07 (02338720) Chattahoochee River (city of LaGrange intake) near LaGrange, Ga., 1978



CH-07 (02338720) Chattahoochee River (city of LaGrange intake) near LaGrange, Ga., 1979



CH-05A (02339190) Chattahoochee River at State Highway 701, near Abbottsford, Ga., 1978

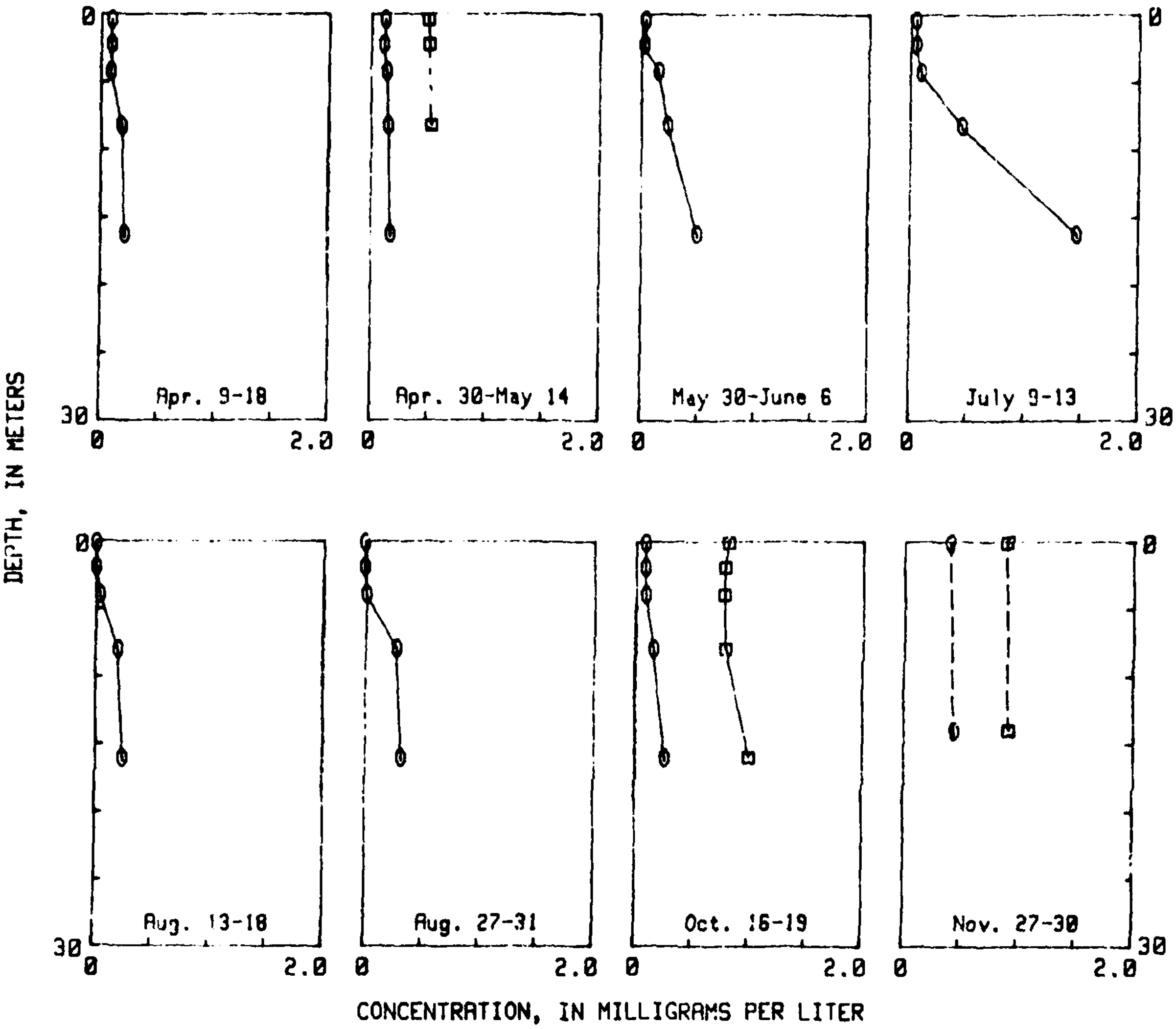


EXPLANATION

O-Dissolved orthophosphate (as phosphorus)

□-Total phosphorus (as phosphorus)

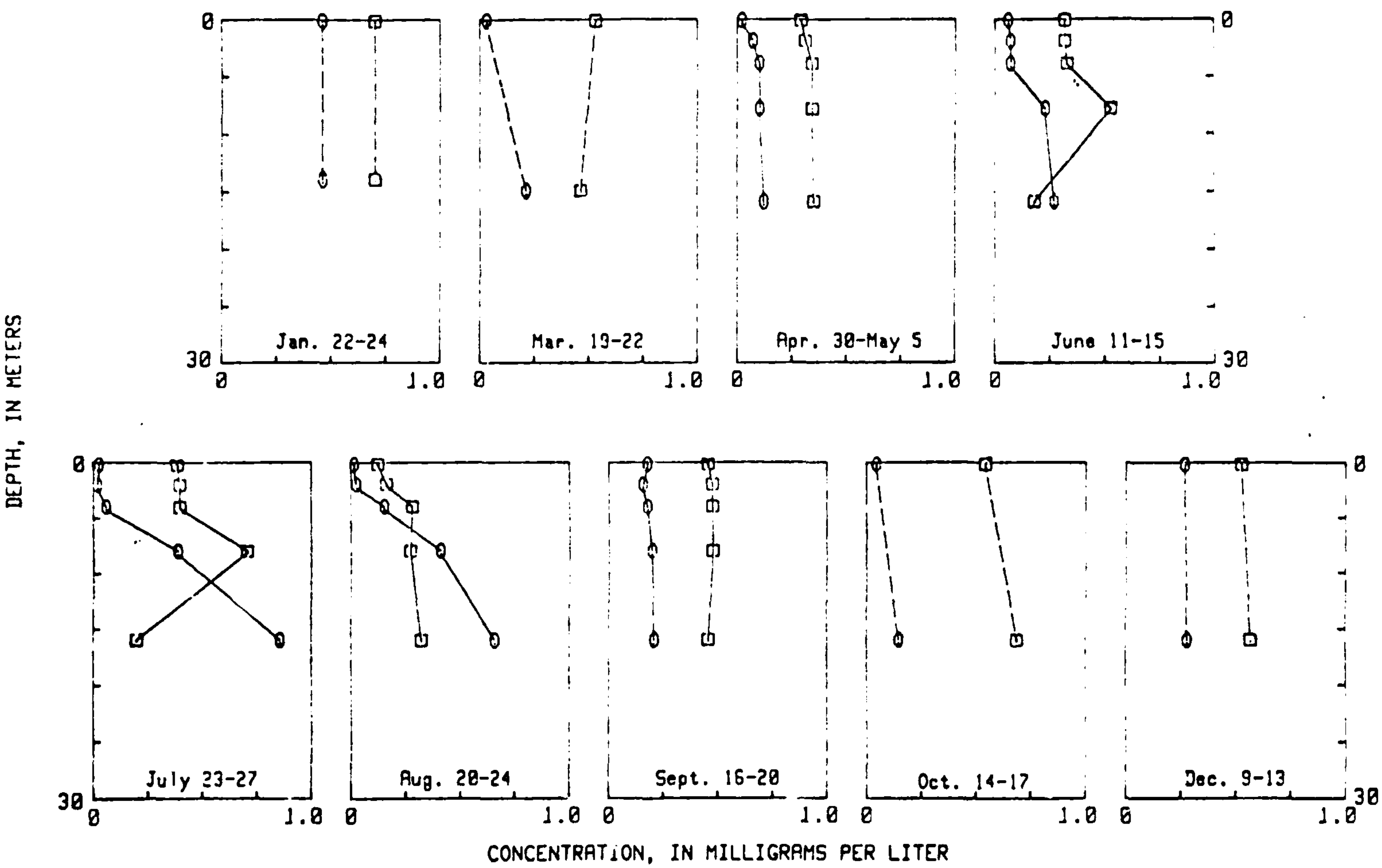
CH-05A (02339190) Chattahoochee River at State Highway 701, near Abbottsford, Ga., 1979



EXPLANATION

□-Nitrate plus nitrite (as nitrogen)
O-Ammonia (as nitrogen)

CH-05A (02339190) Chattahoochee River at State Highway 701, near Abbottsford, Ga., 1978

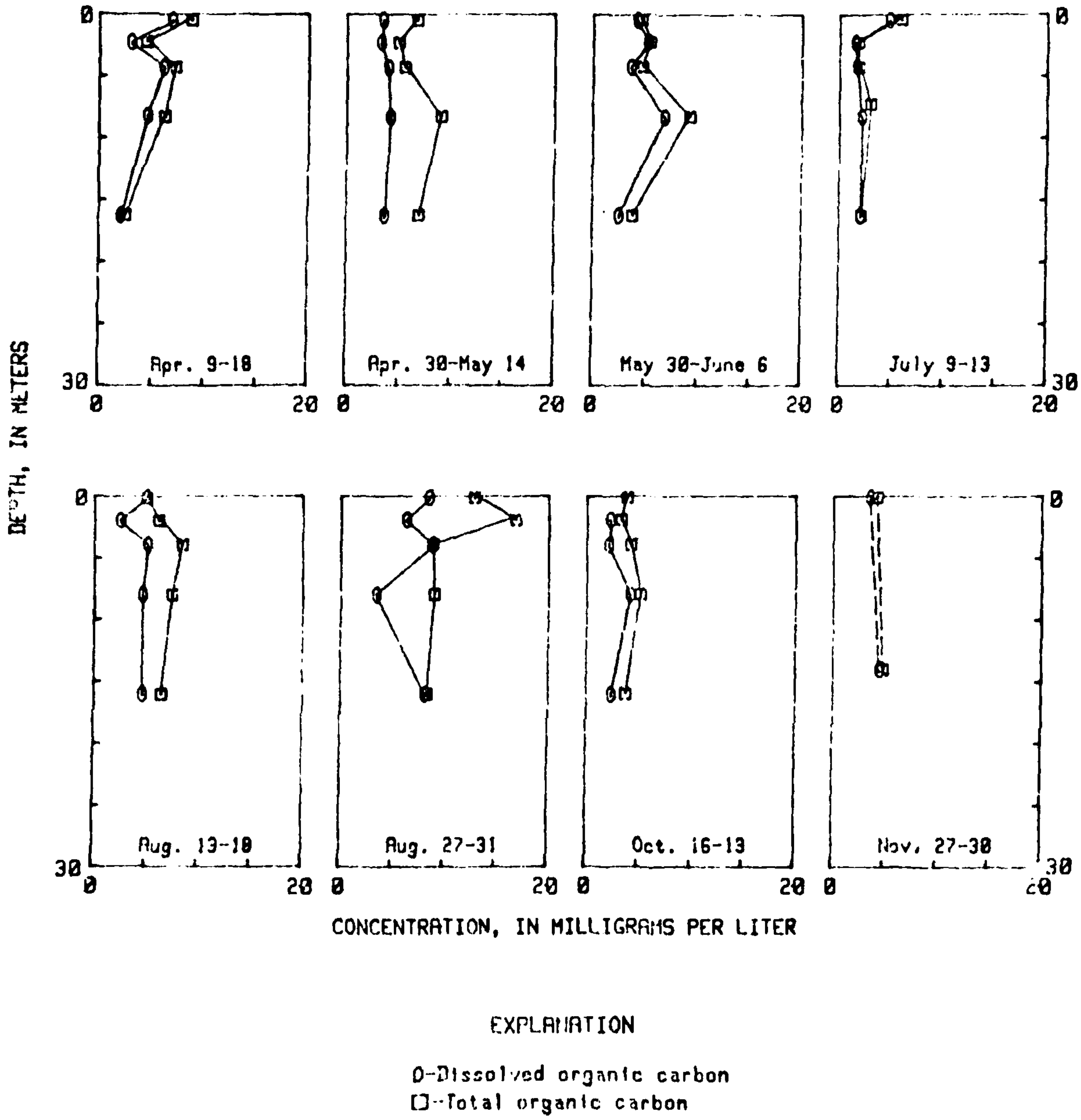


EXPLANATION

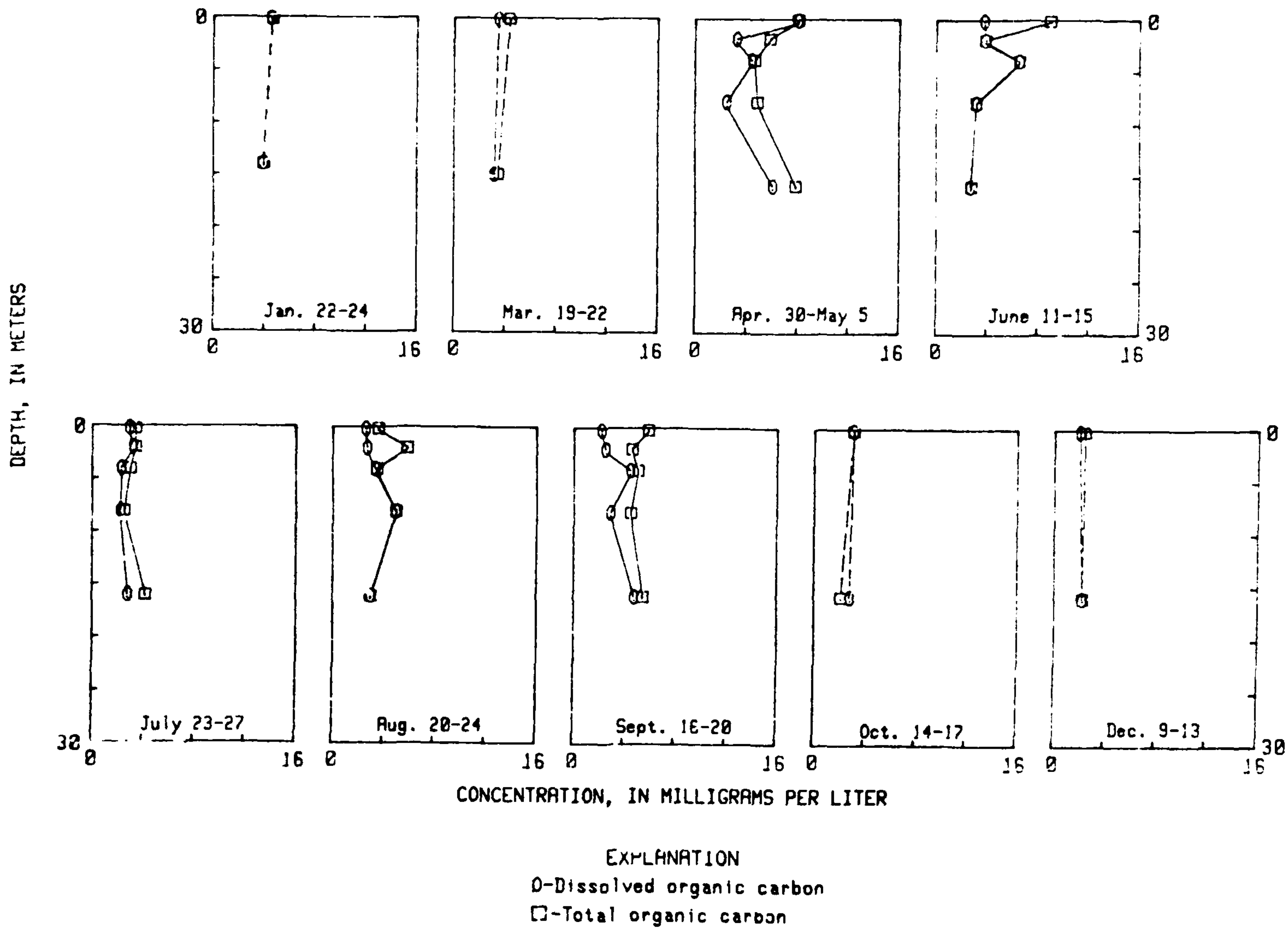
□-Nitrate plus nitrite (as nitrogen)

O-Ammonia (as nitrogen)

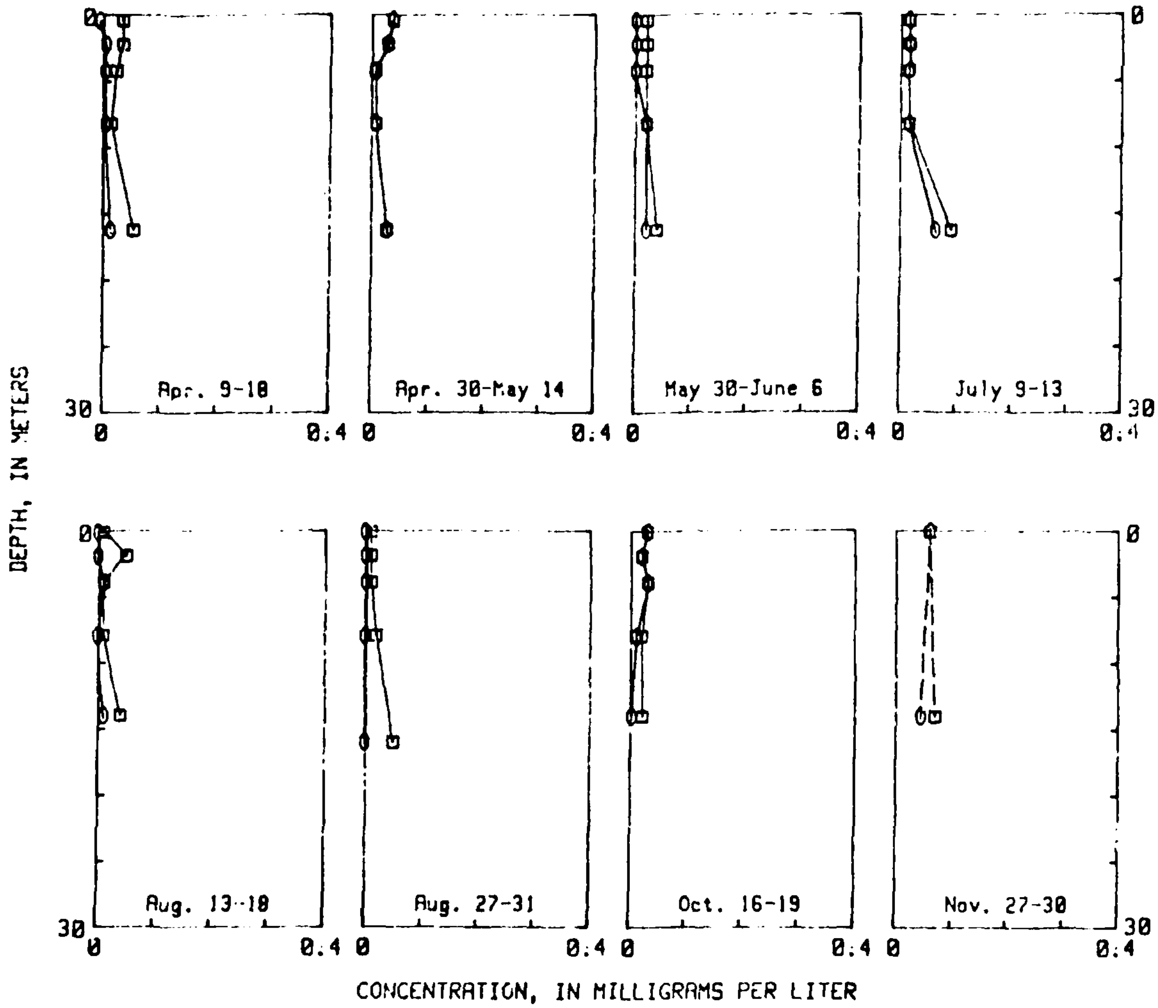
CH-05A (02339190) Chattahoochee River at State Highway 701, near Abbottsford, Ga., 1979



CH-05A (02339190) Chattahoochee River at State Highway 701, near Abbottsford, Ga., 1978



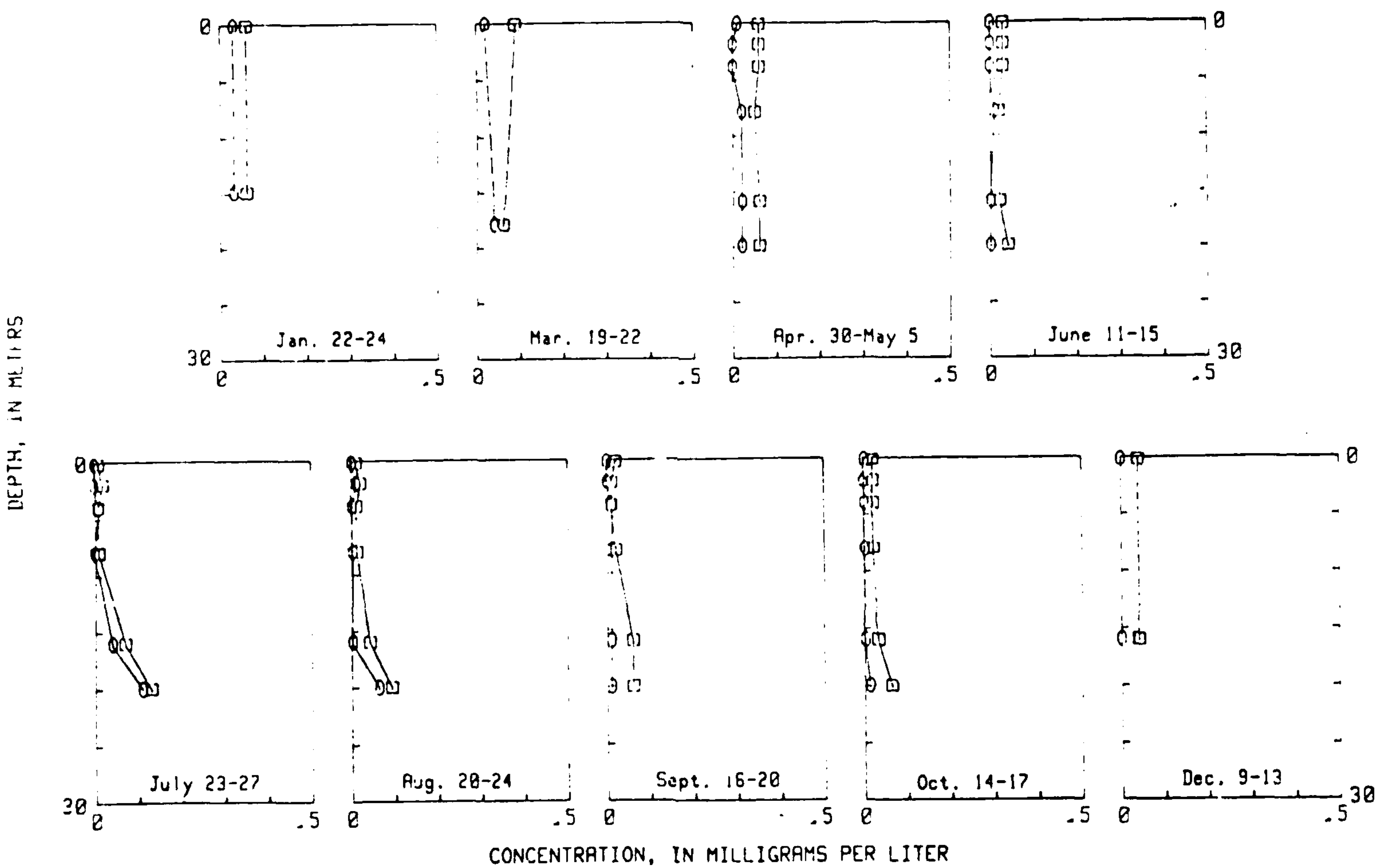
CH-05A (02339190) Chattahoochee River at State Highway 701, near Abbottsford, Ga., 1979



EXPLANATION

O-Dissolved orthophosphate (as phosphorus)
□-Total phosphorus (as phosphorus)

CH 03C (02339388) Chattahoochee River below coffer dam, above West Point Dam, 1978

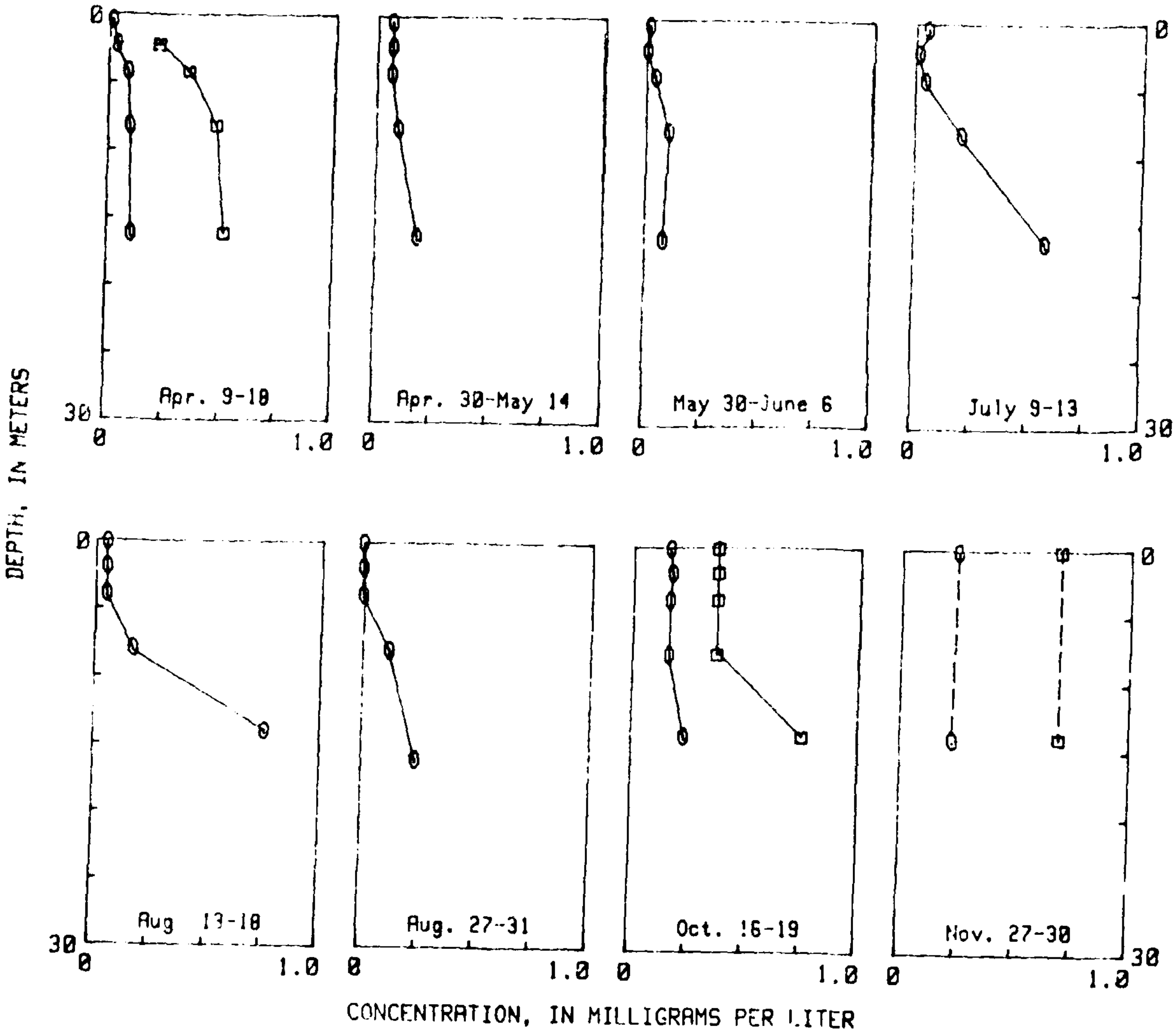


EXPLANATION

O-Dissolved orthophosphate (as phosphorus)

□-Total phosphorus (as phosphorus)

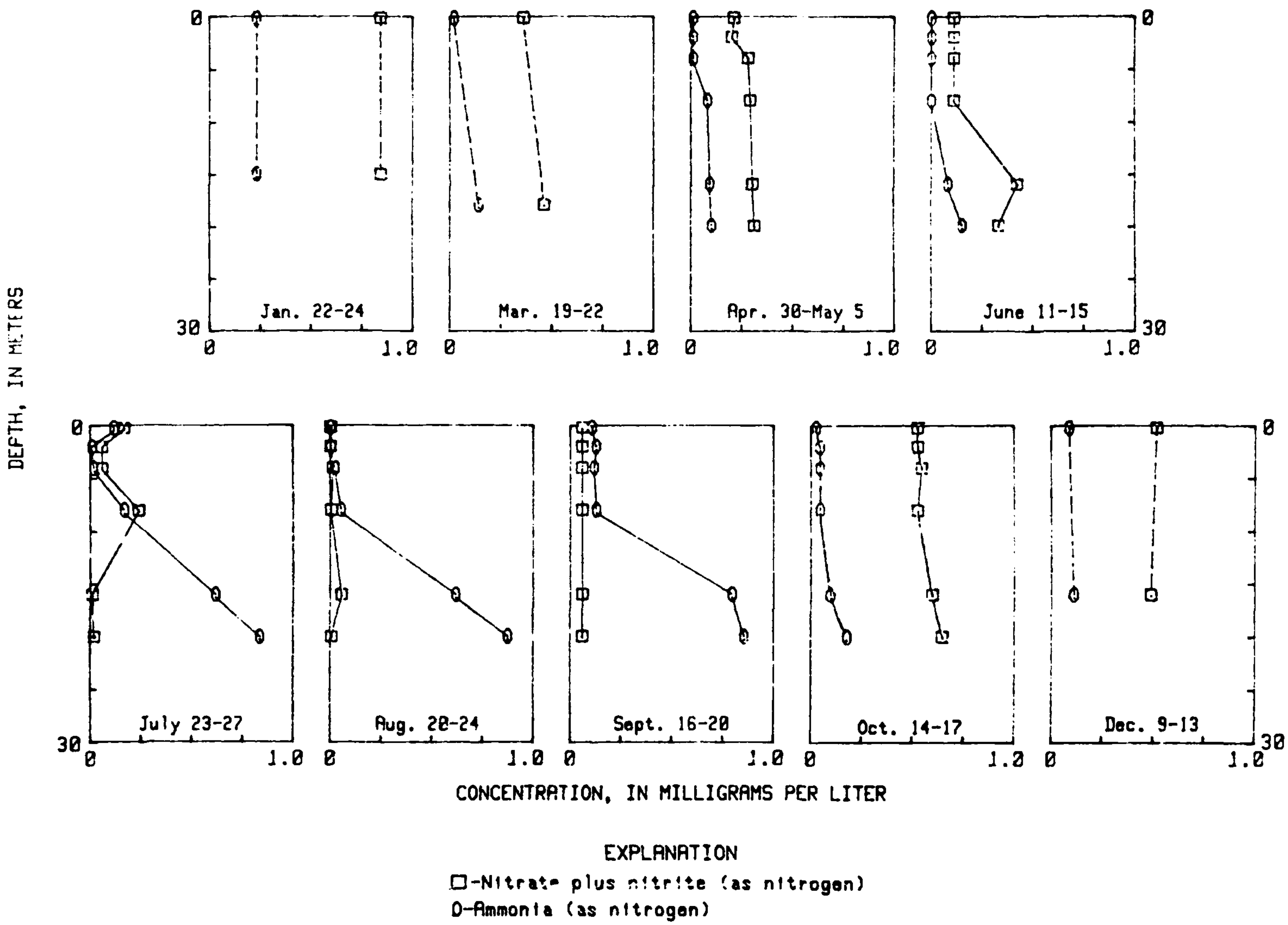
CH-03C (02339388) Chattahcouchee River below coffer dam, above West Point Dam, 1979



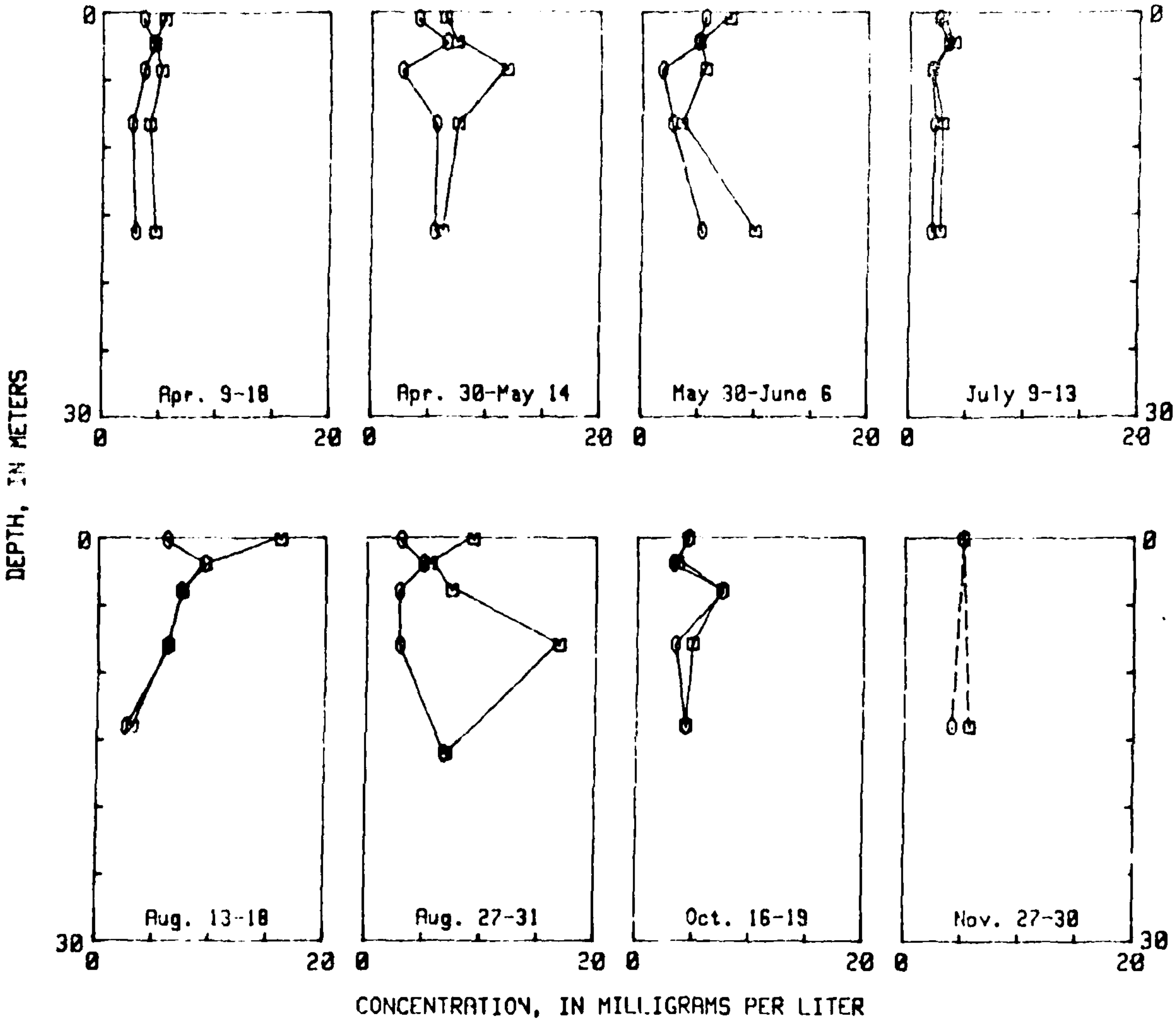
EXPLANATION

□-Nitrate plus nitrite (as nitrogen)
O-Ammonia (as nitrogen)

CH-03C (02339380) Chattahoochee River below coffer dam, above West Point Dam, 1978



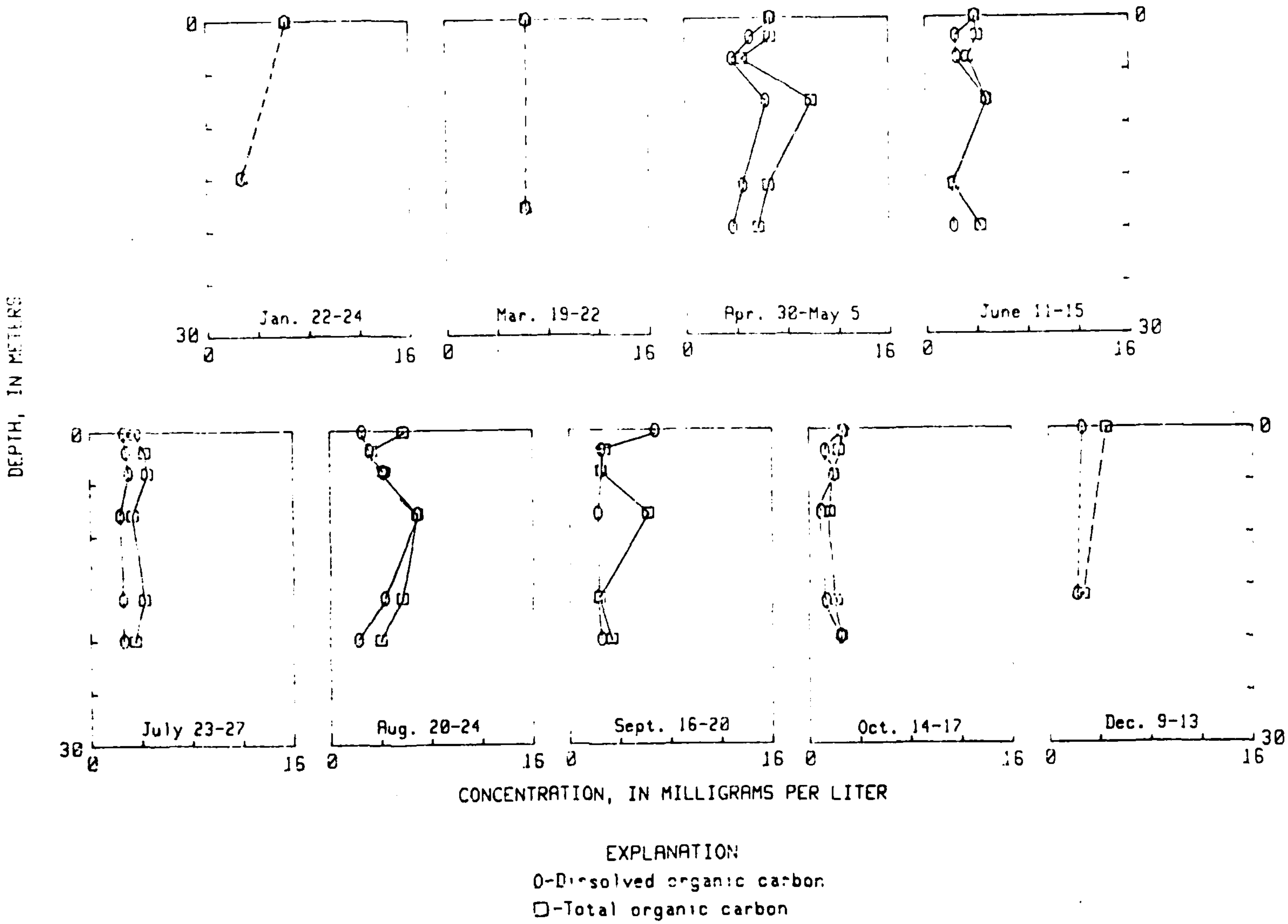
CH-03C (02339388) Chattahoochee River below coffer dam, above West Point Dam, 1979



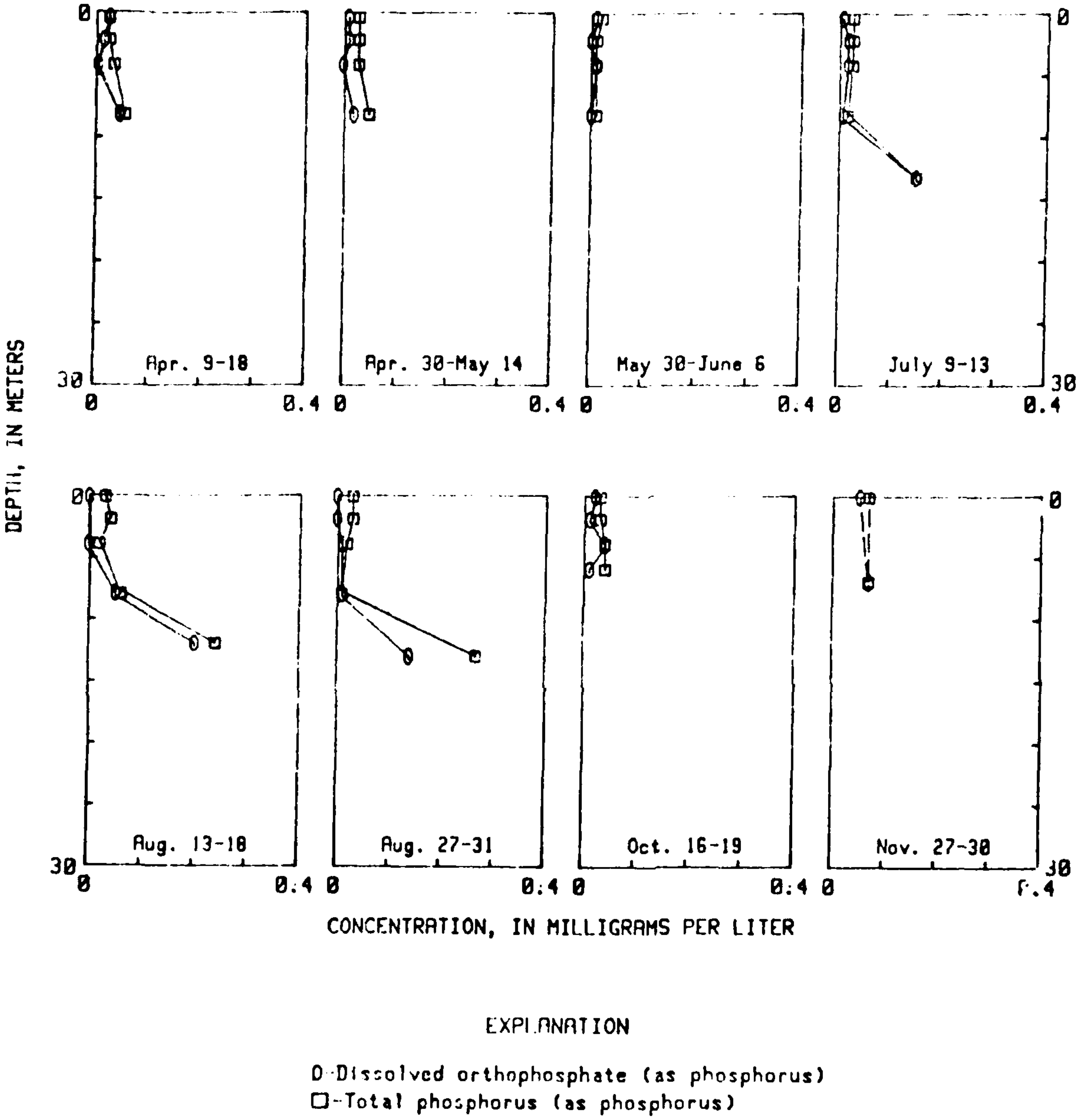
EXPLANATION

O-Dissolved organic carbon
□-Total organic carbon

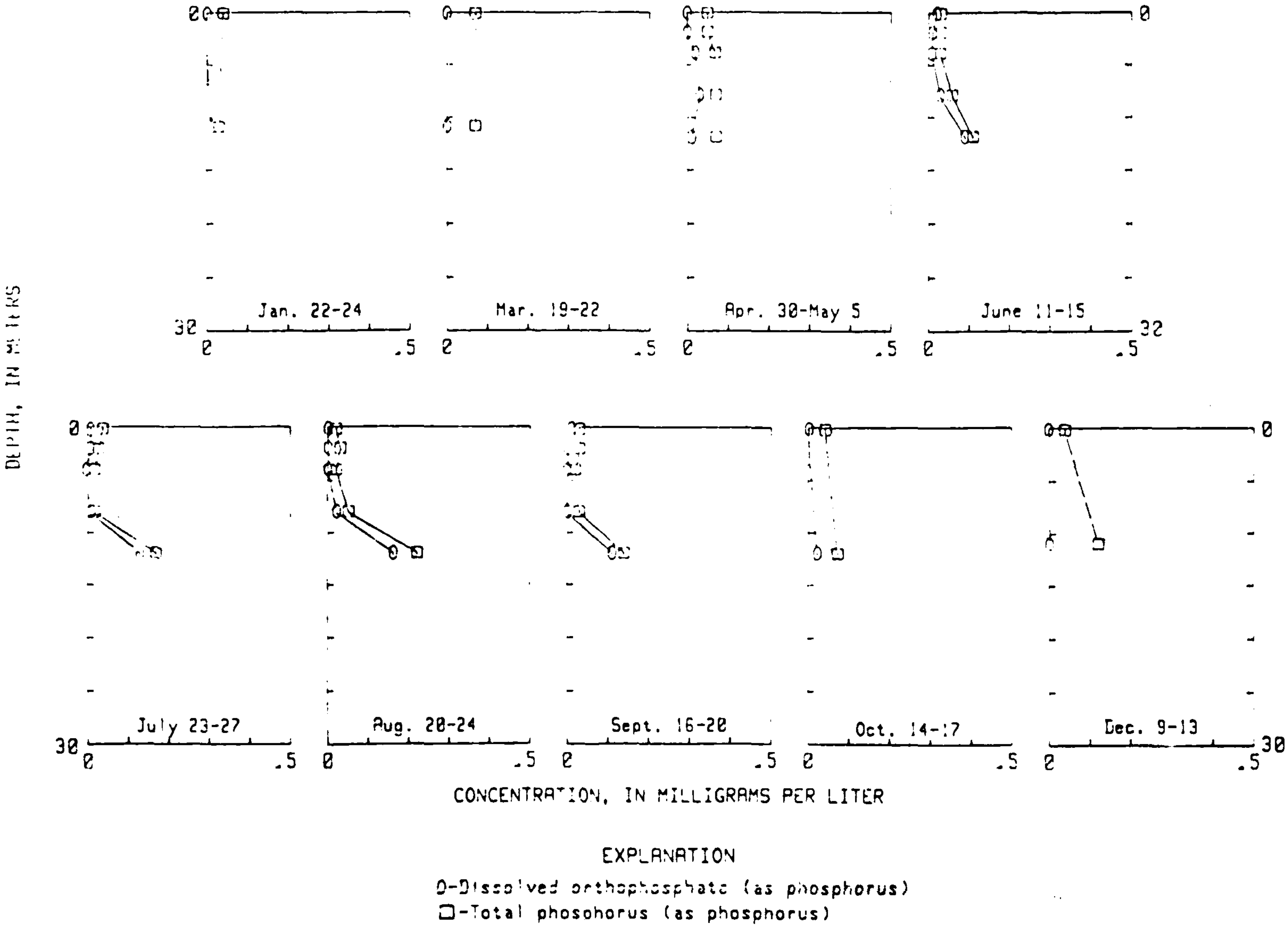
CH-03C (02339388) Chattahoochee River below coffer dam, above West Point Dam, 1978



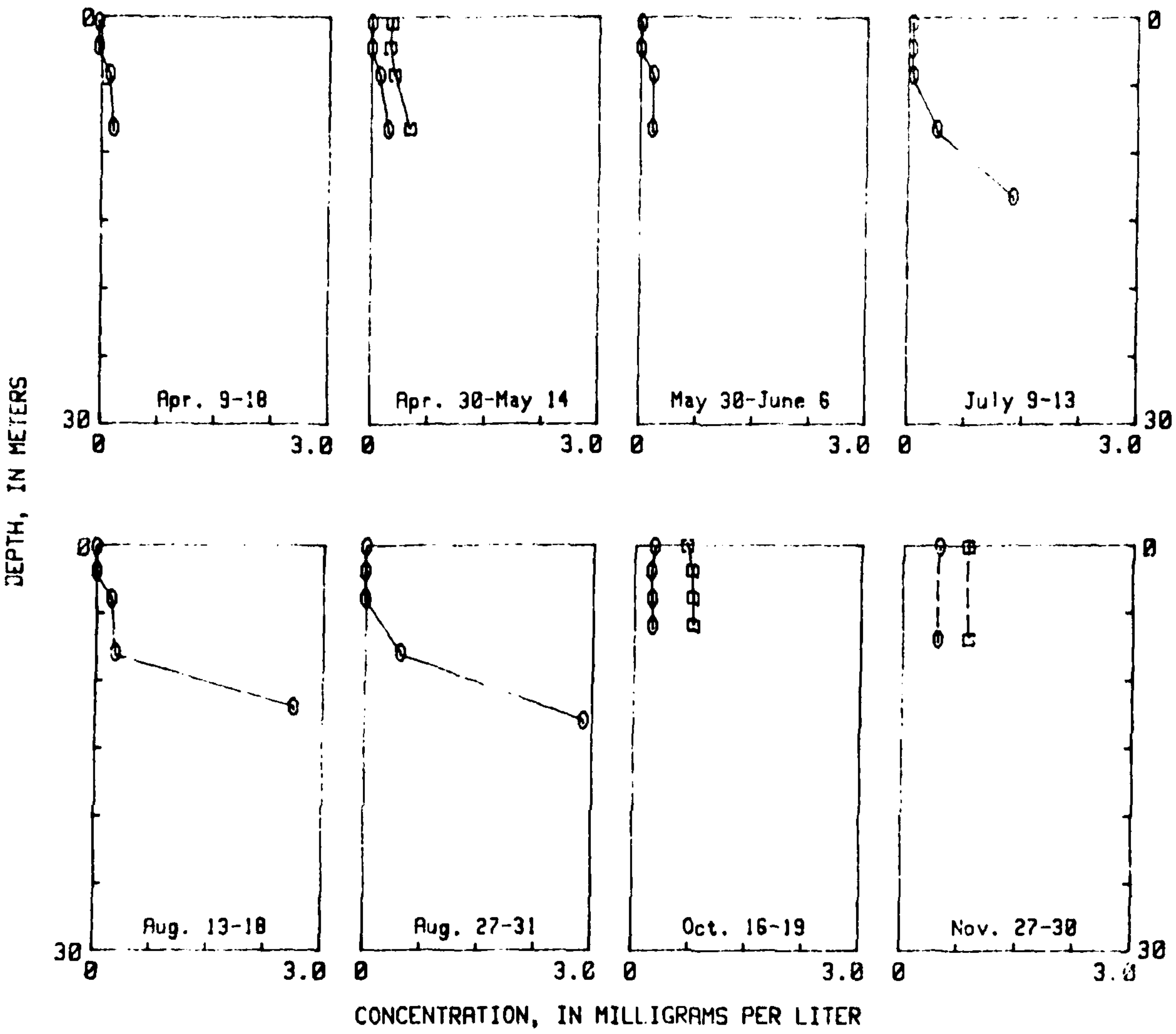
CH-03C (02339368) Chattahoochee River below coffer dam, above West Point Dam, 1979



CH-08 (02339020) Chattahoochee River at Cameron Mill Road, near LaGrange, Ga., 1978



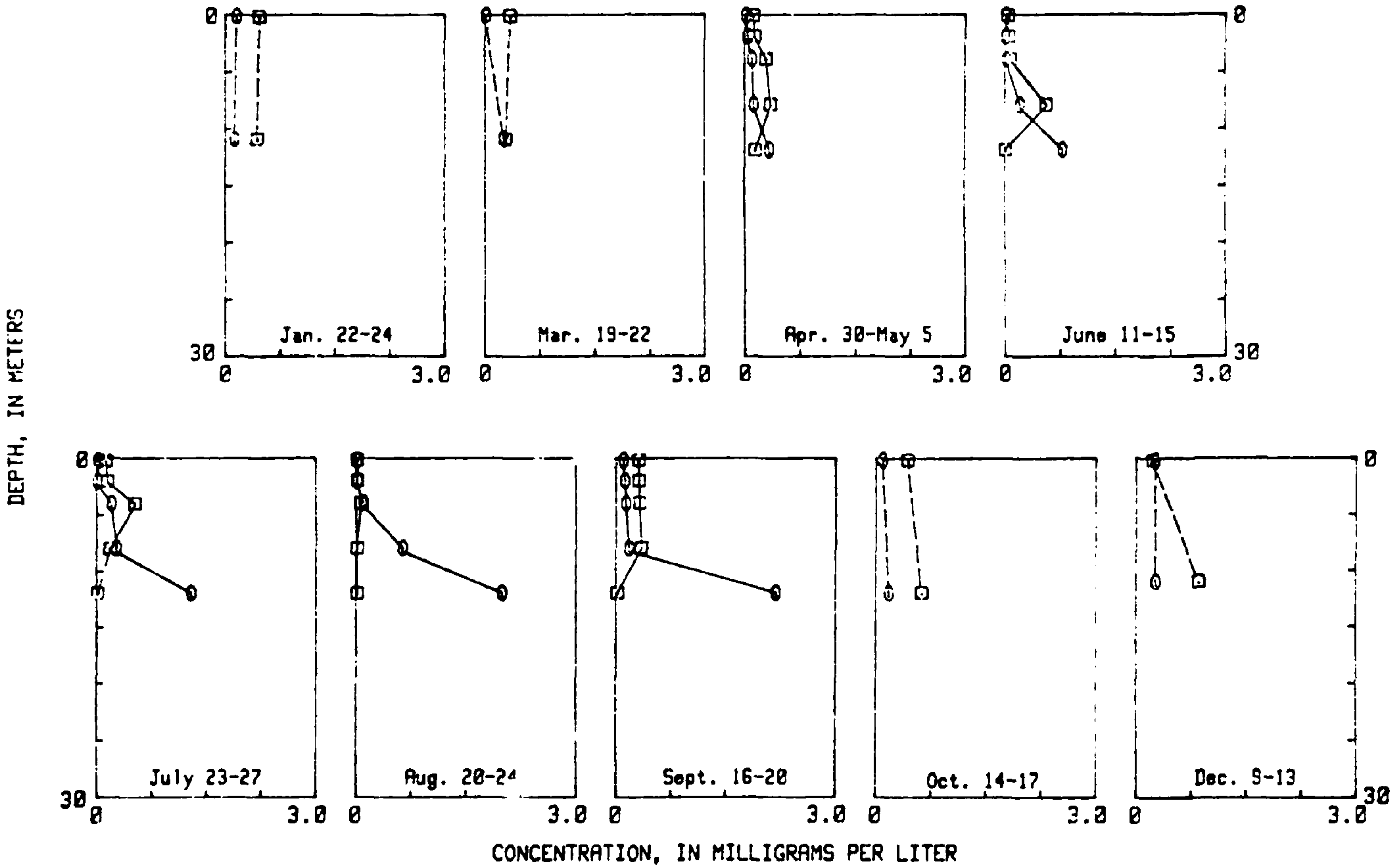
CH-08 (02339020) Chattahoochee River at Cameron Mill Road, near LaGrange, Ga., 1979



EXPLANATION

□-Nitrate plus nitrite (as nitrogen)
O-Ammonia (as nitrogen)

CH-08 (02339020) Chattahoochee River at Cameron Mill Road, near LaGrange, Ga., 1978

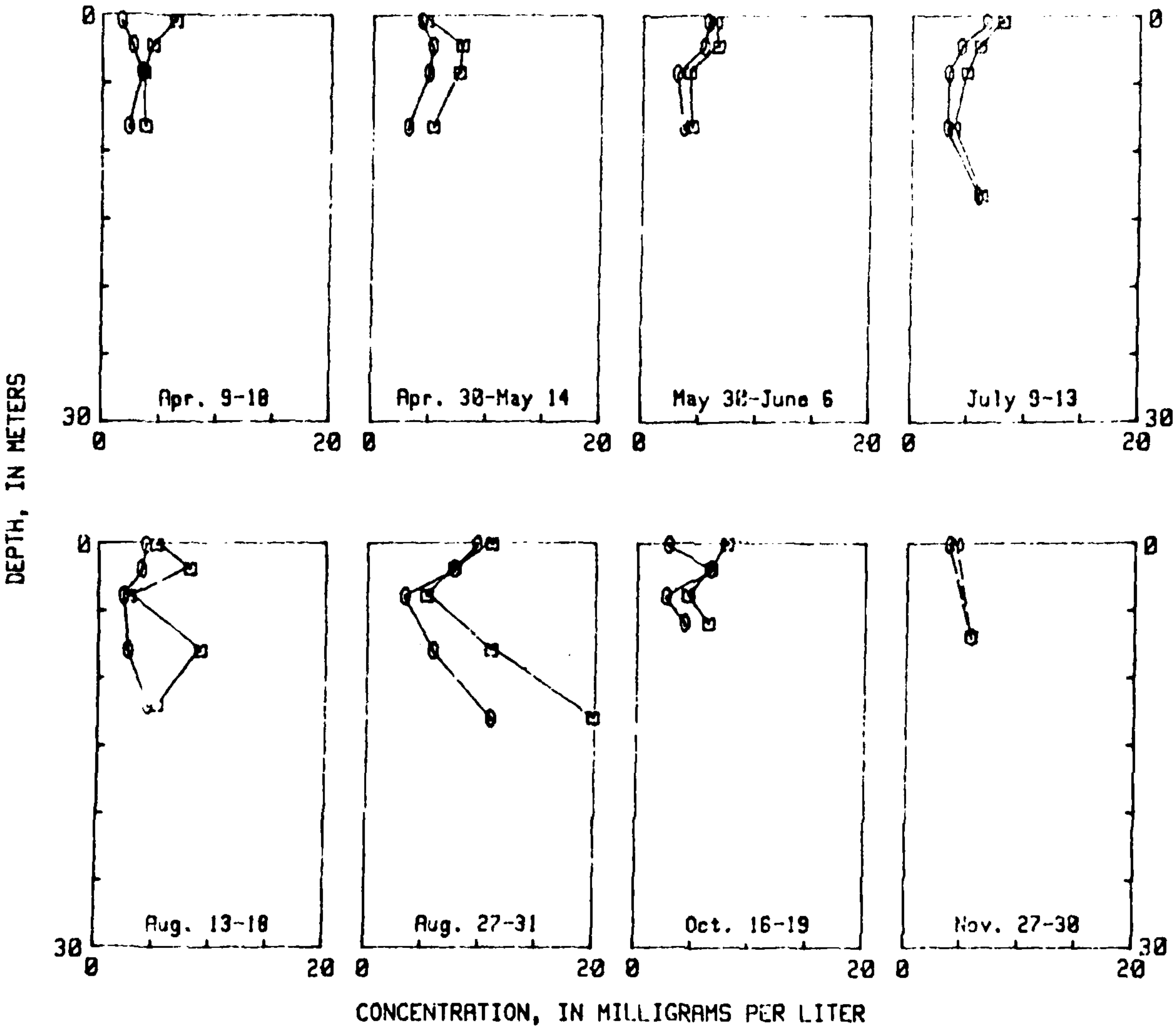


EXPLANATION

□-Nitrate plus nitrite (as nitrogen)

O-Ammonia (as nitrogen)

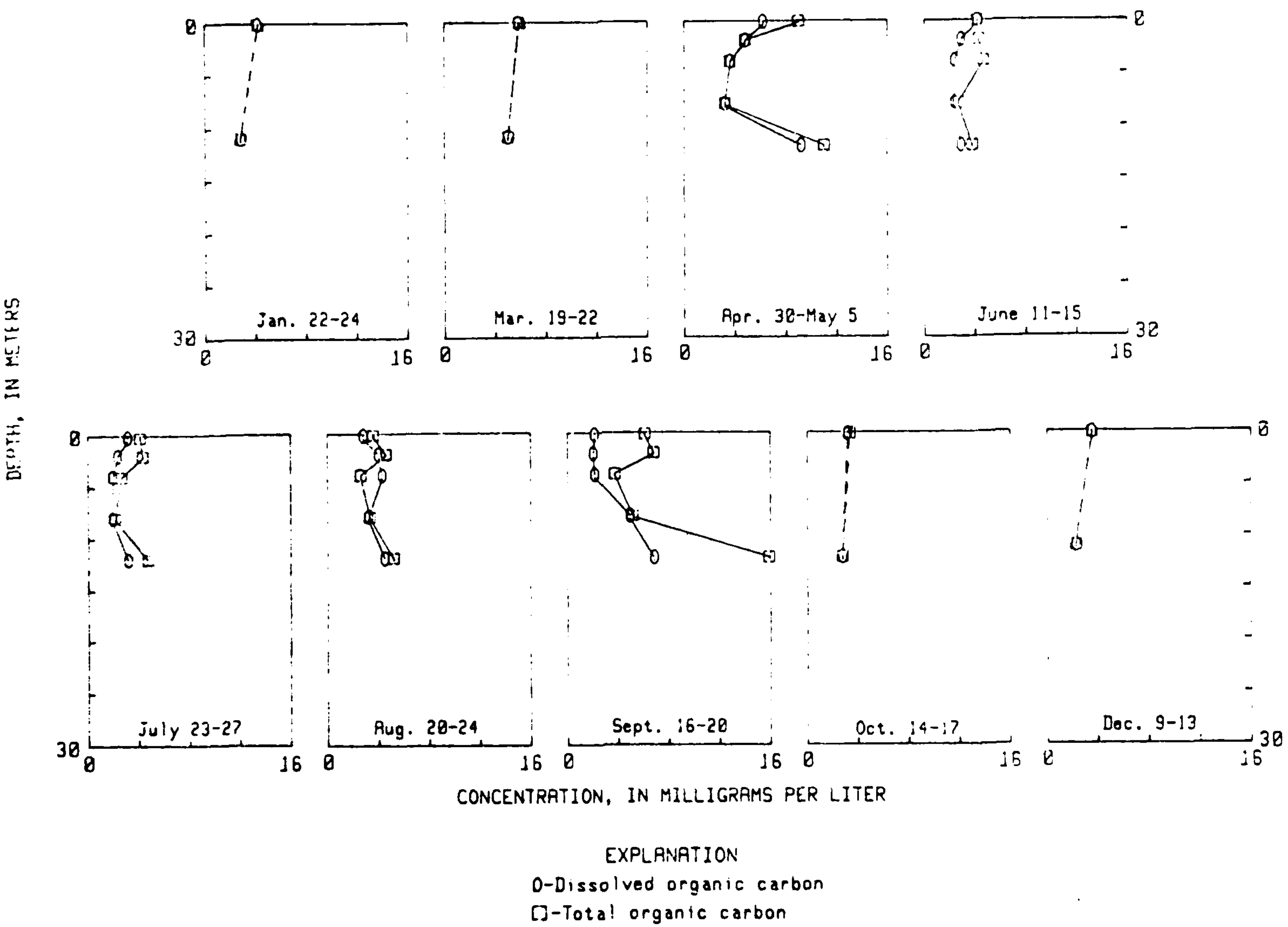
CH-08 (02339020) Chattahoochee River at Cameron Mill Road, near LaGrange, Ga., 1979



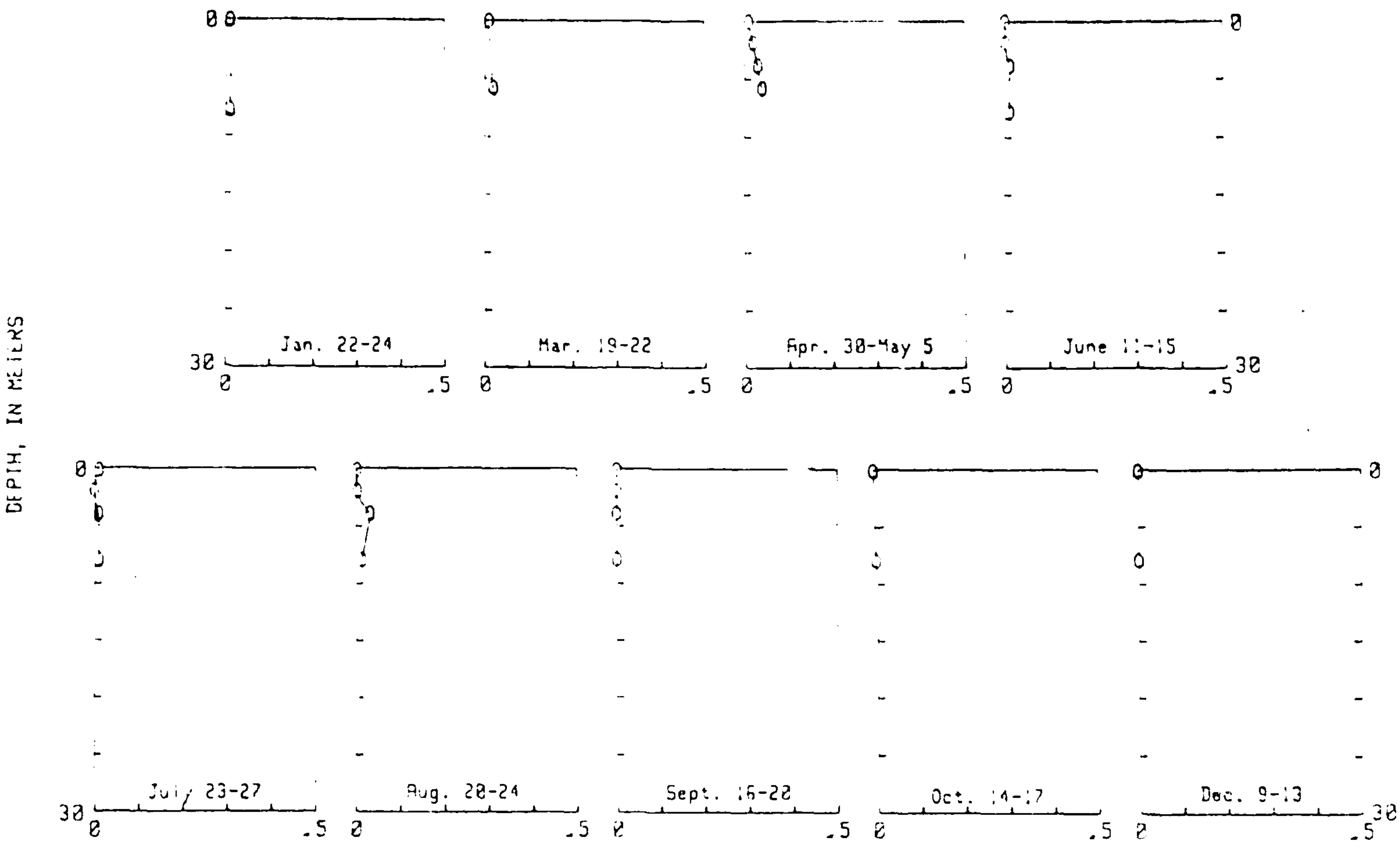
EXPLANATION

O-Dissolved organic carbon
□-Total organic carbon

CH 08 (02339020) Chattahoochee River at Cameron Mill Road, near LaGrange, Ga., 1978



CH-08 (02339020) Chattahoochee River at Cameron Mill Road, near LaGrange, Ga., 1979

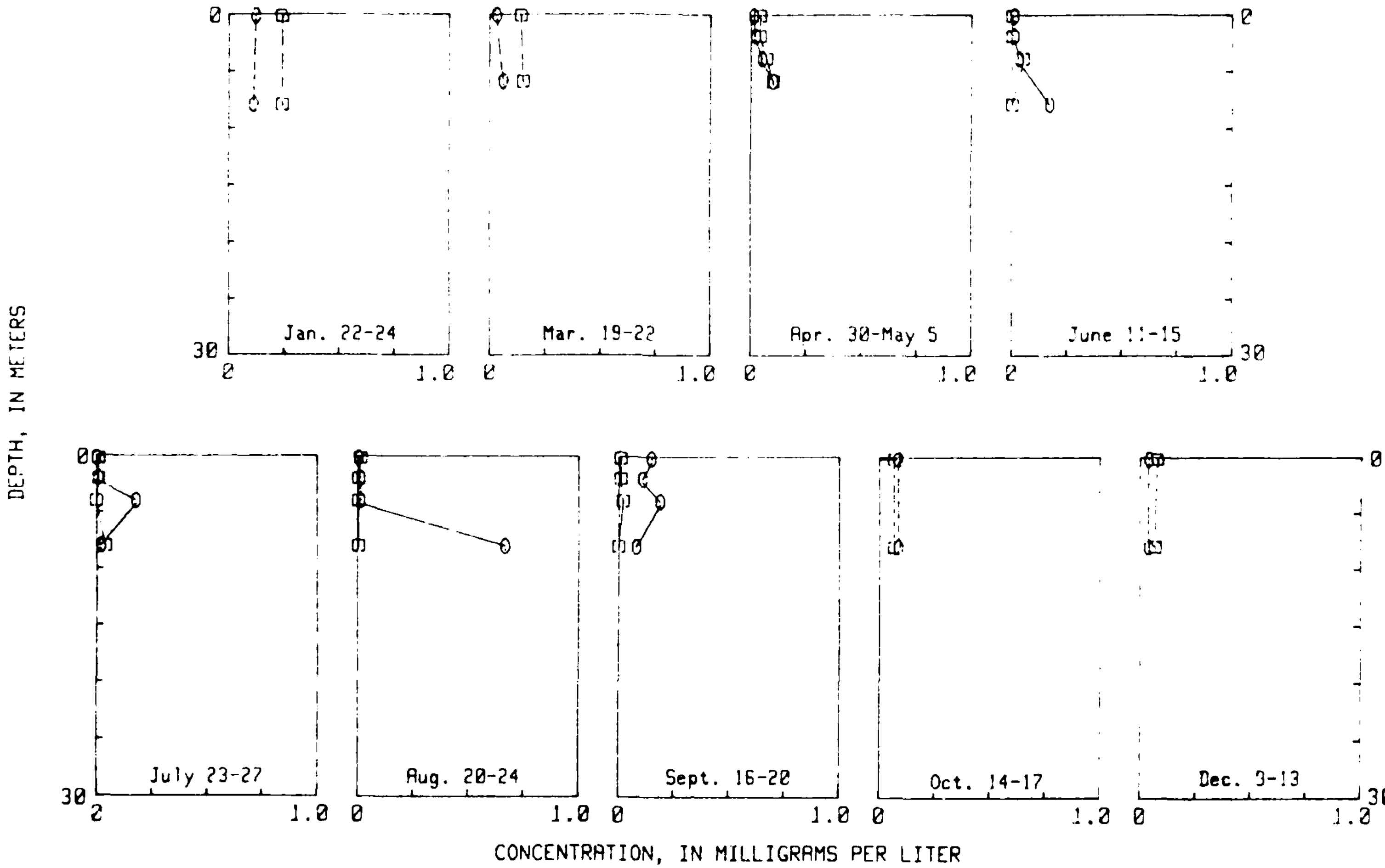


CONCENTRATION, IN MILLIGRAMS PER LITER

EXPLANATION

O-Dissolved orthophosphate (as phosphorus)

CH-04 (02339350) Wehadkee Creek at State Highway 244, near Abbottsford, Ga., 1979

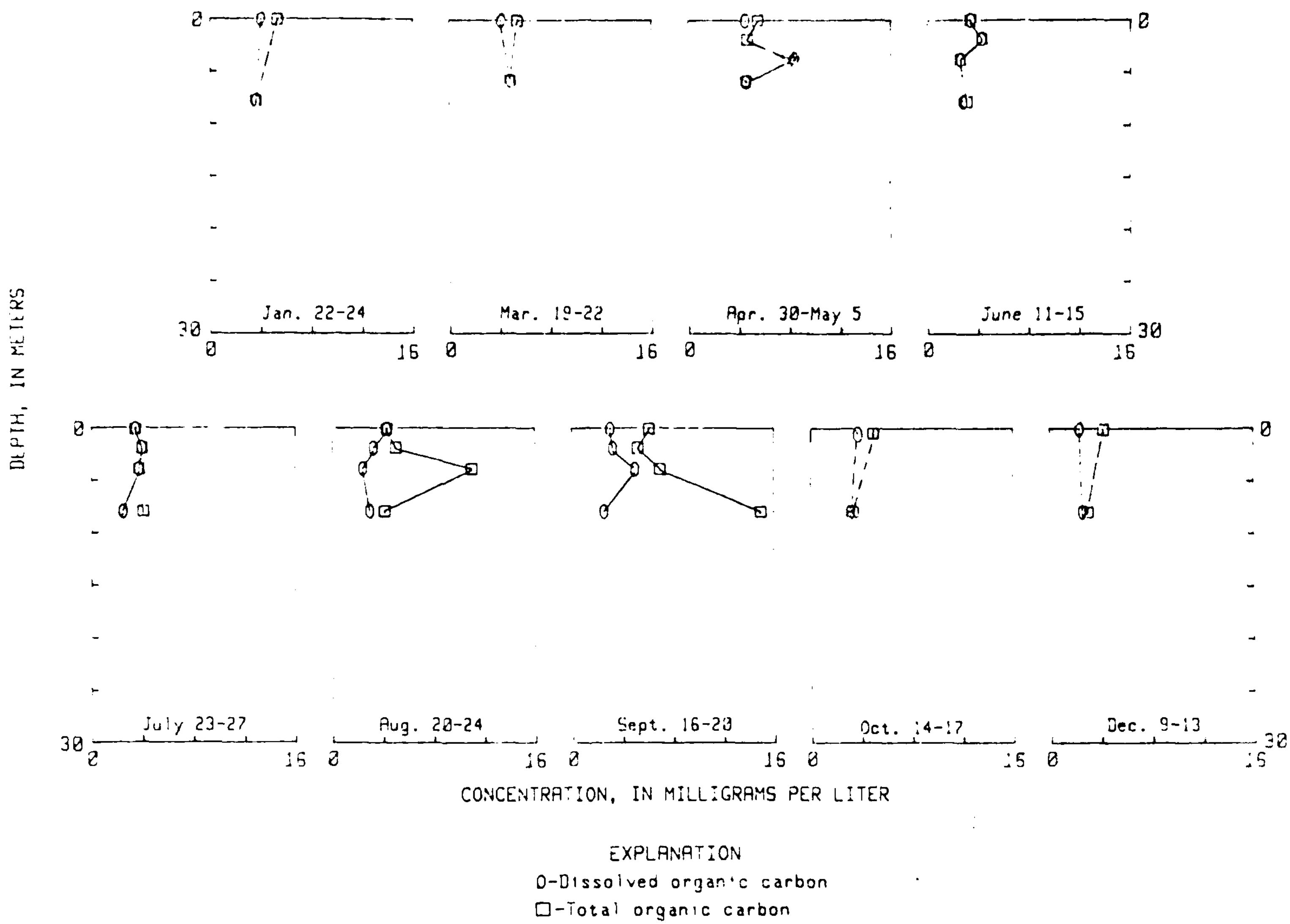


EXPLANATION

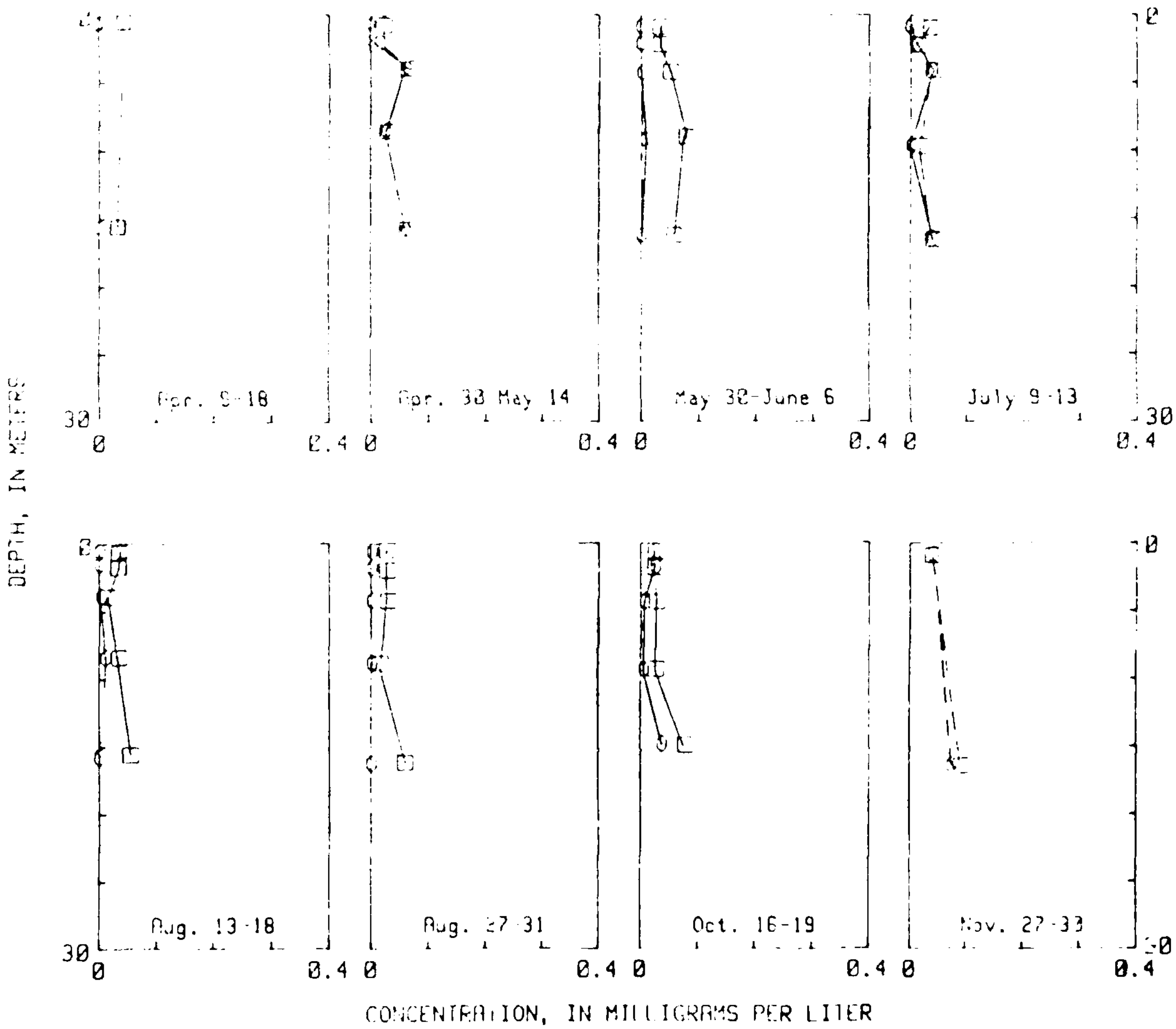
□-Nitrate plus nitrite (as nitrogen)

O-Ammonia (as nitrogen)

CH-04 (02339350) Wehadkee Creek at State Highway 241, near Abbottsford, Ga., 1979



CH-04 (02339350) Wehadkee Creek at State Highway 244, near Abbottsford, Ga., 1979



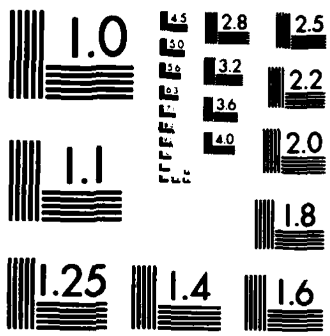
EXPLANATION

O Dissolved orthophosphate (as phosphorus)
[] Total phosphorus (as phosphorus)

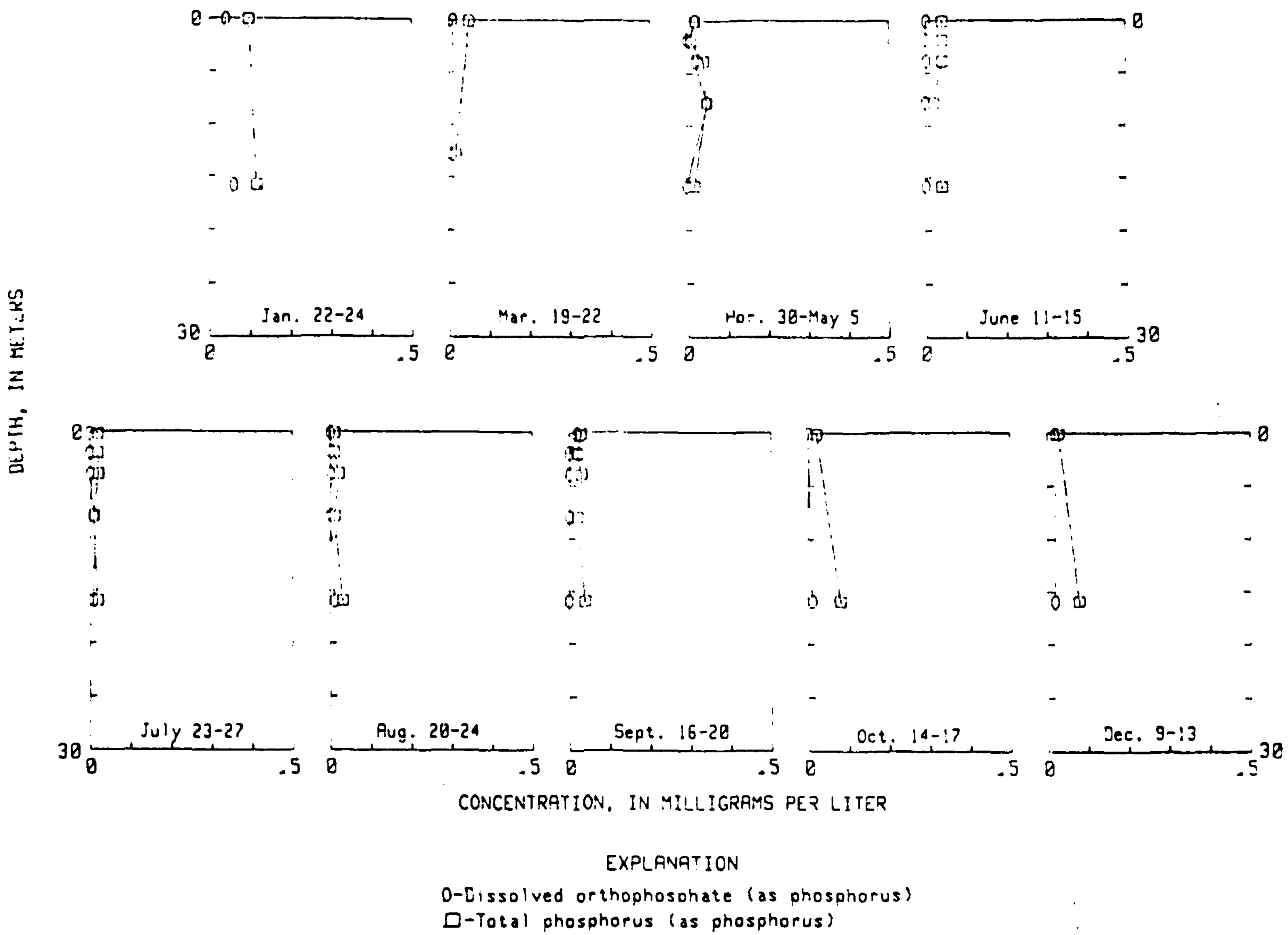
CH-13 (02339362) Wehadkee Creek at State Highway 238, near Abbottsford, Ga., 1978

AD-A149 942 WATER QAALITY MANAGEMENT STUDIES WEST POINT LAKE CHATTAHOOCHEE RIVER ALAB..(U) CORPS OF ENGINEERS MOBILE AL MOBILE DISTRICT D B RADTKE ET AL. AUG 84 5/6

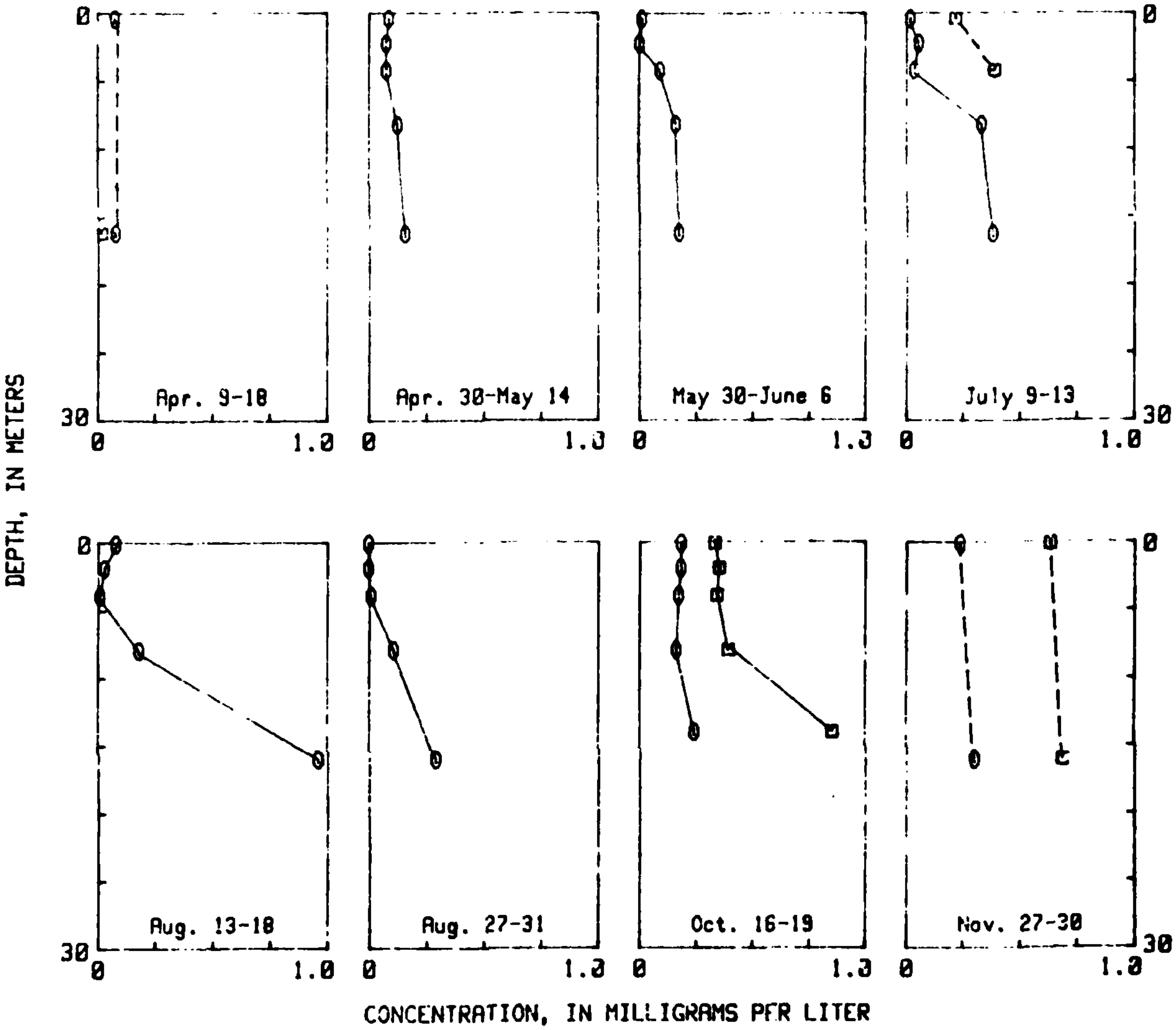
UNCLASSIFIED COESAM/PDEE-84/004 F/G 8/8 NL



MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A



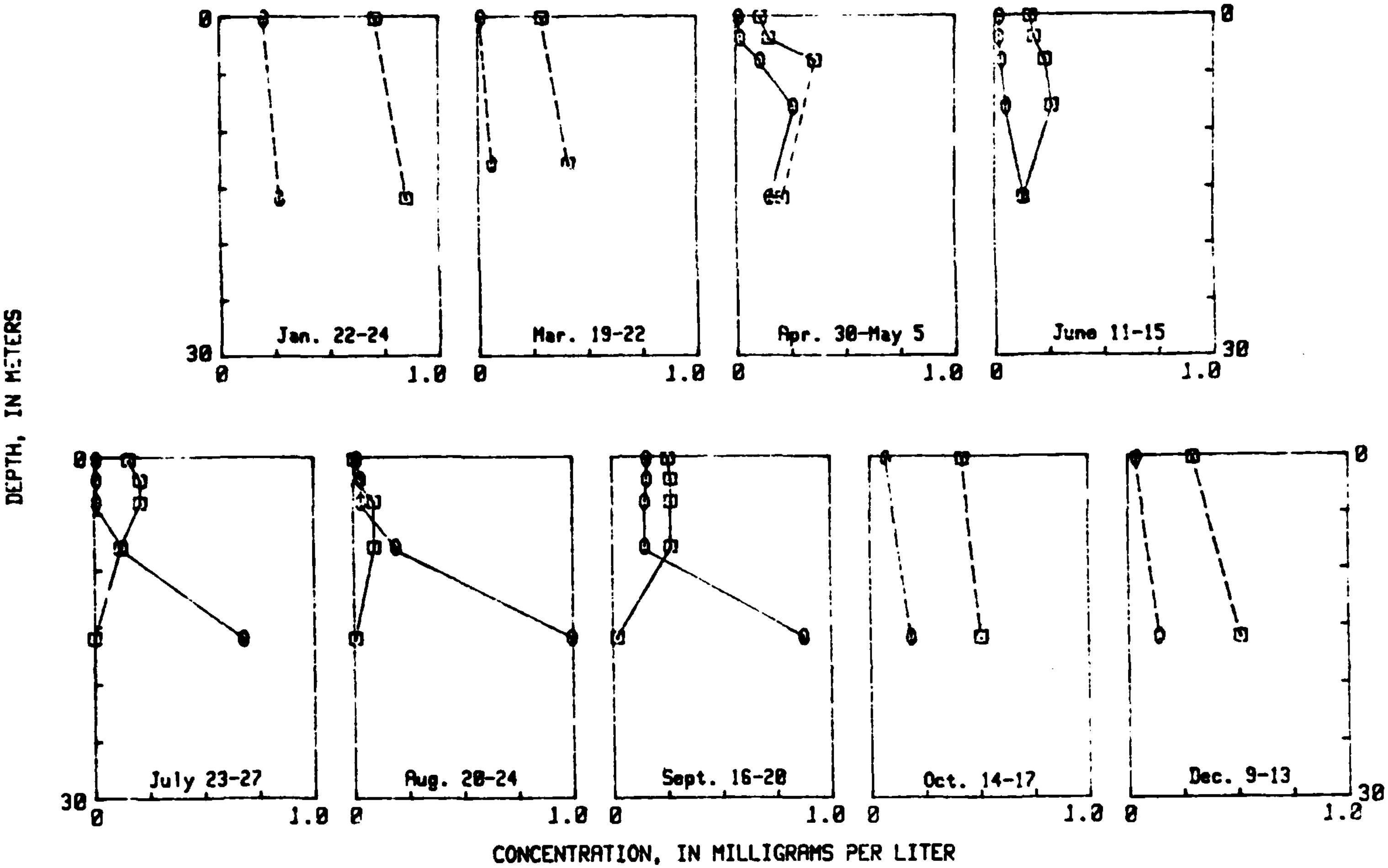
CH-13 (02339362) Wehadkee Creek at State Highway 238, near Abbottsford, Ga., 1979



EXPLANATION

□-Nitrate plus nitrite (as nitrogen)
O-Ammonia (as nitrogen)

CH-13 (02339362) Wehadkee Creek at State Highway 236, near Abbottsford, Ga., 1978

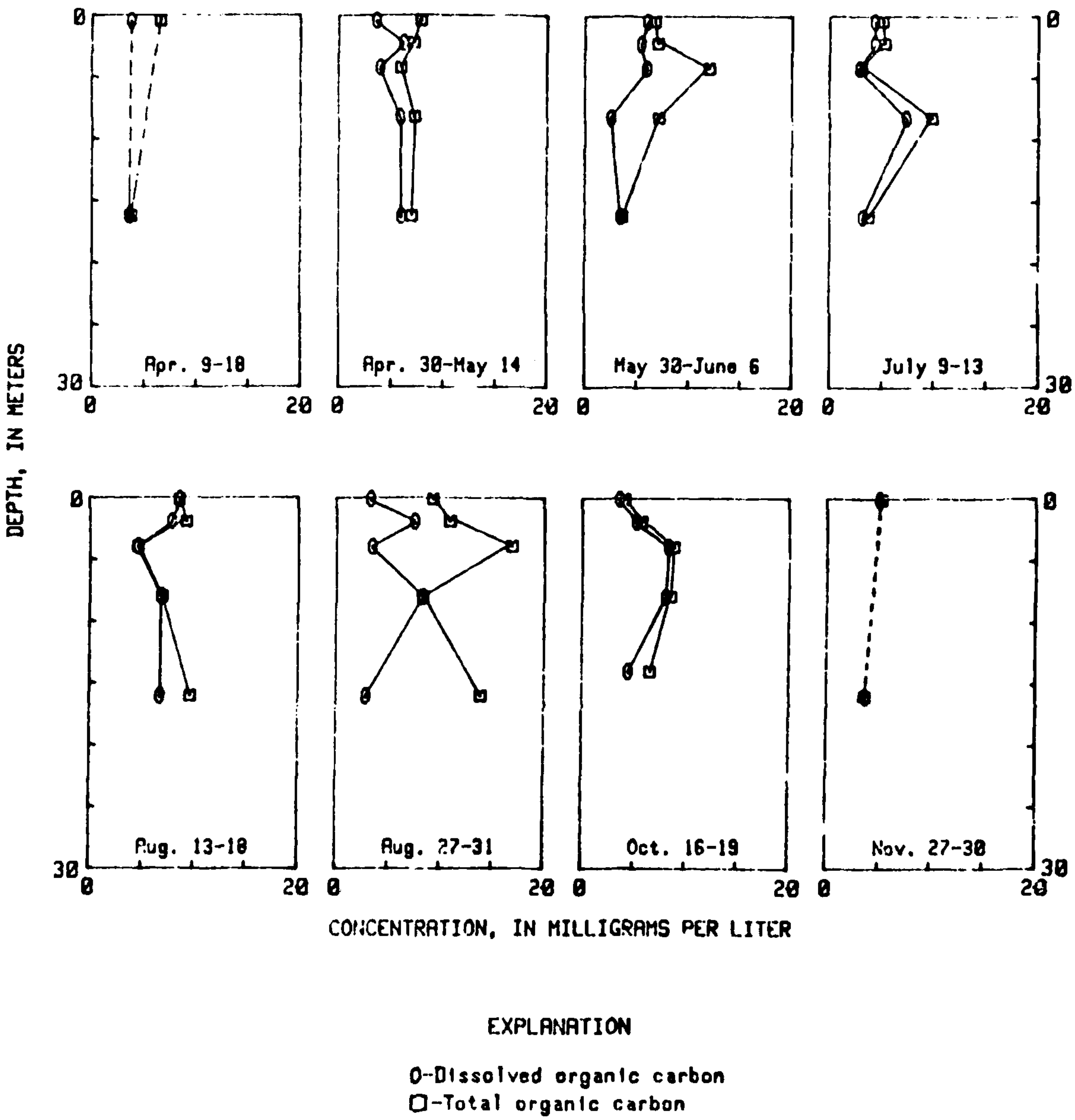


EXPLANATION

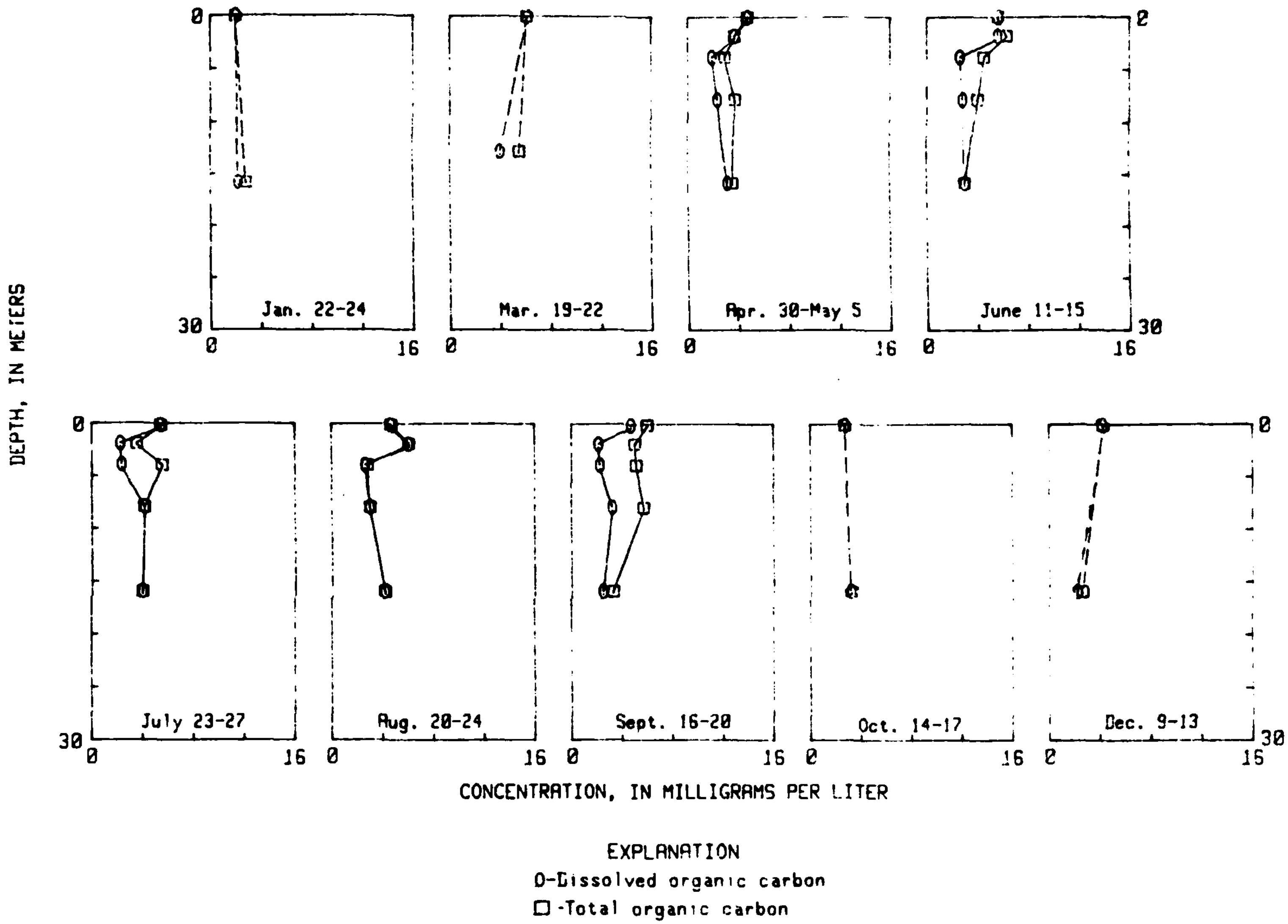
□-Nitrate plus nitrite (as nitrogen)

O-Ammonia (as nitrogen)

CH-13 (02339362) Wehadkee Creek at State Highway 238, near Abbottsford, Ga., 1979



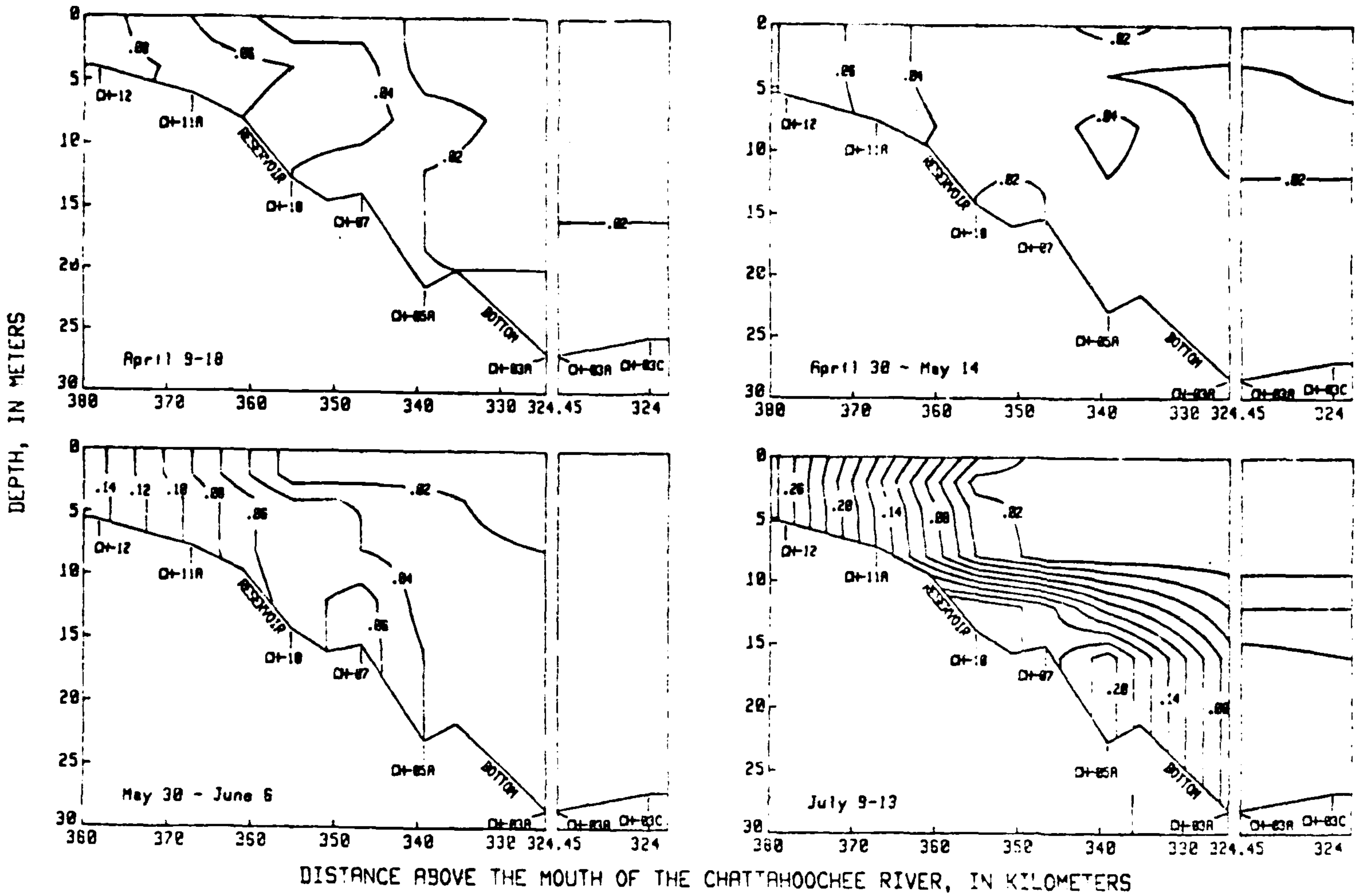
CH-13 (02339362) Wehadkee Creek at State Highway 238, near Abbottsford, Ga., 1978



CH-13 (02339362) Wehadkee Creek at State Highway 238, near Abbottsford, Ga., 1979

APPENDIX C-9

Isopleths showing longitudinal variations in nutrient concentrations in West Point Reservoir, April 1978-December 1979

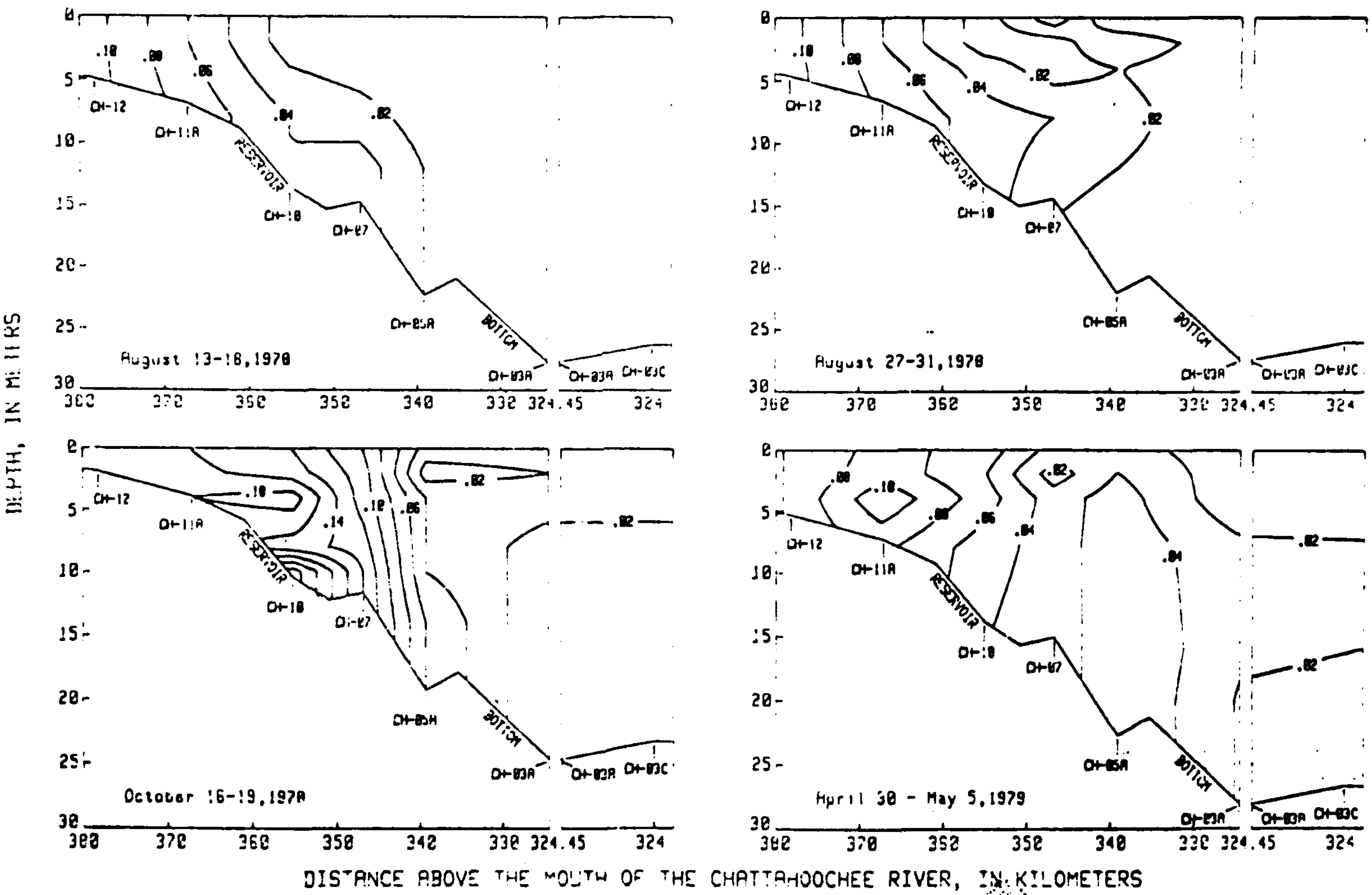


EXPLANATION

-0.08- LINE OF EQUAL DISSOLVED ORTHOPHOSPHATE CONCENTRATION - Interval 0.02 milligrams per liter

CH-05A WATER SAMPLING STATION

Dissolved orthophosphate concentration, April-July 1978

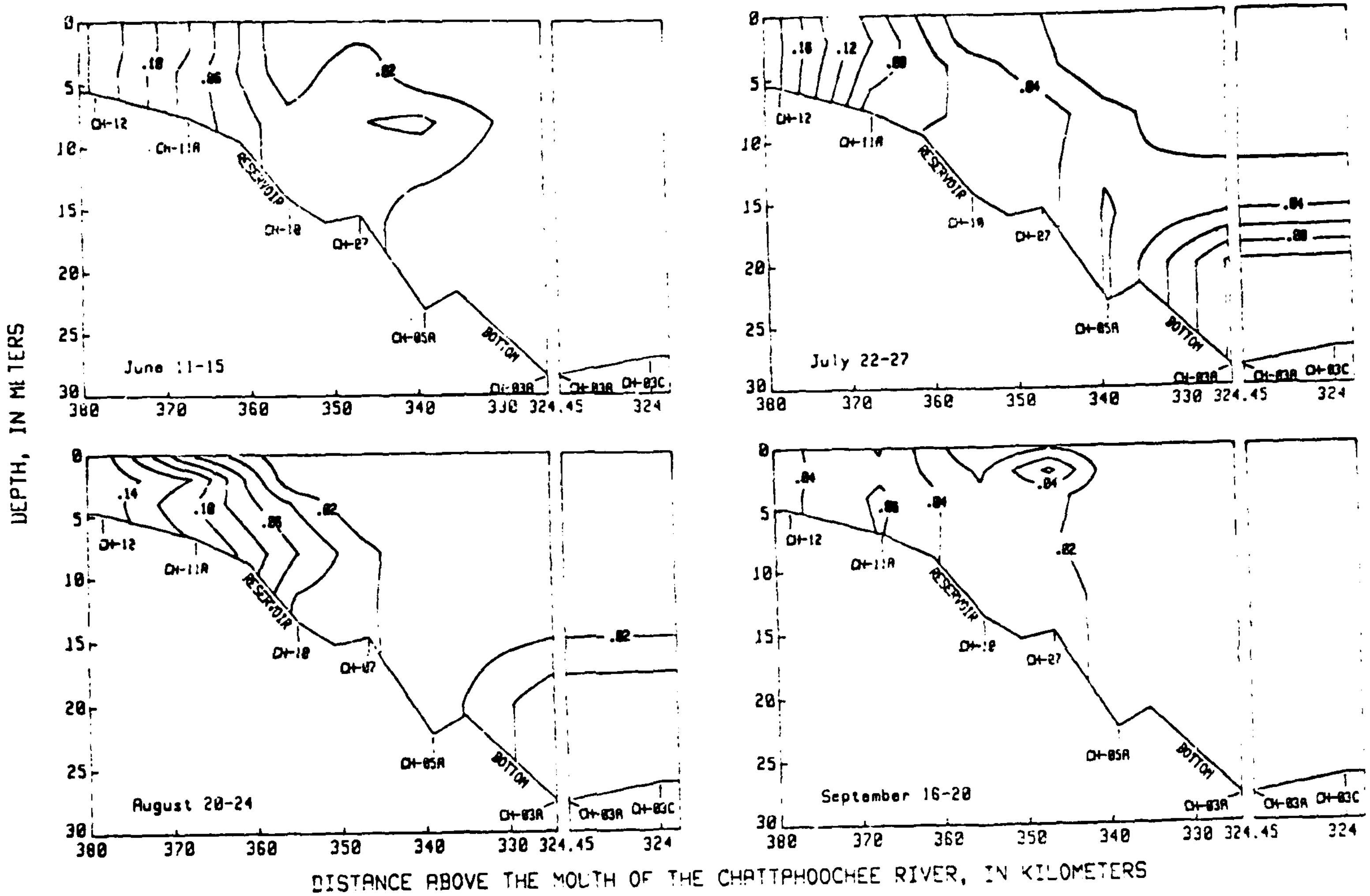


EXPLANATION

-0.04- LINE OF EQUAL DISSOLVED ORTHOPHOSPHATE CONCENTRATION - Interval 0.02 milligrams per liter

CH-25A WATER SAMPLING STATION

Dissolved orthophosphate concentration, August 1978 - May 1979

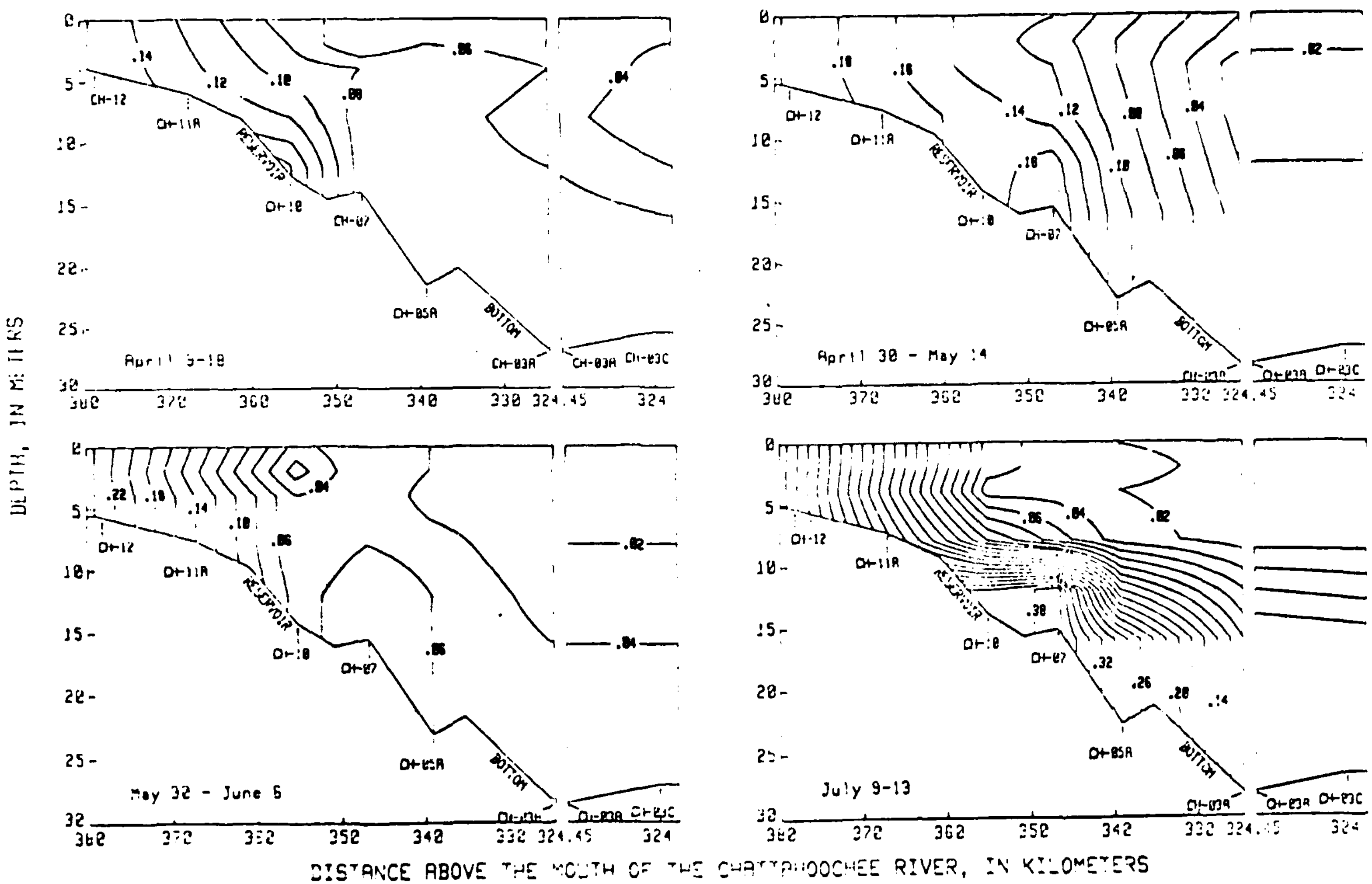


EXPLANATION

-0.04- LINE OF EQUAL DISSOLVED ORTHOPHOSPHATE CONCENTRATION - Interval 0.02 milligrams per liter

CH-05A WATER SAMPLING STATION

Dissolved orthophosphate concentration, June-September 1979

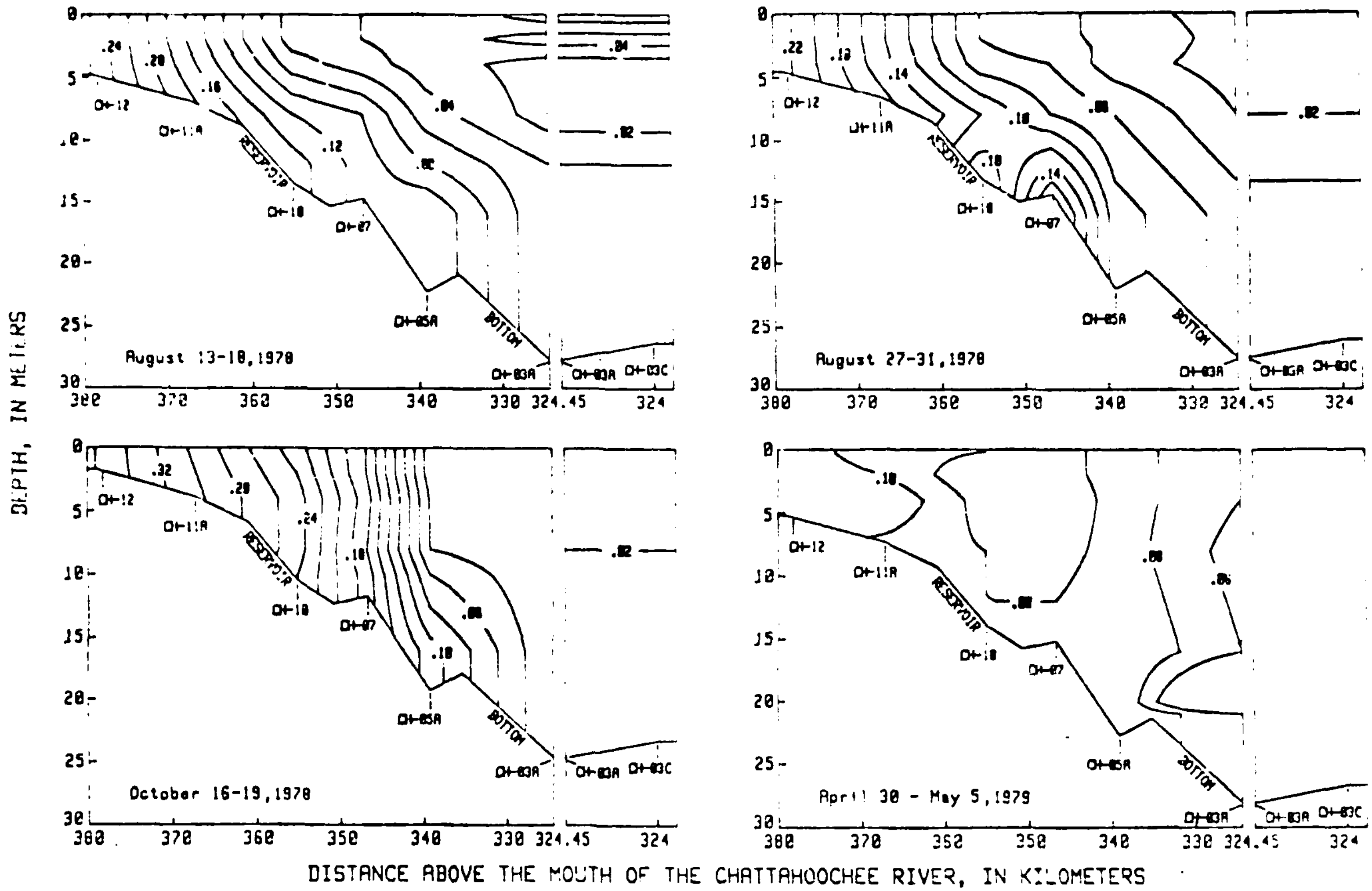


EXPLANATION

-2.00- LINE OF EQUAL TOTAL PHOSPHORUS CONCENTRATION - Interval 0.02 milligrams per liter

CH-25A WATER SAMPLING STATION

Total phosphorus concentration, April-July 1978

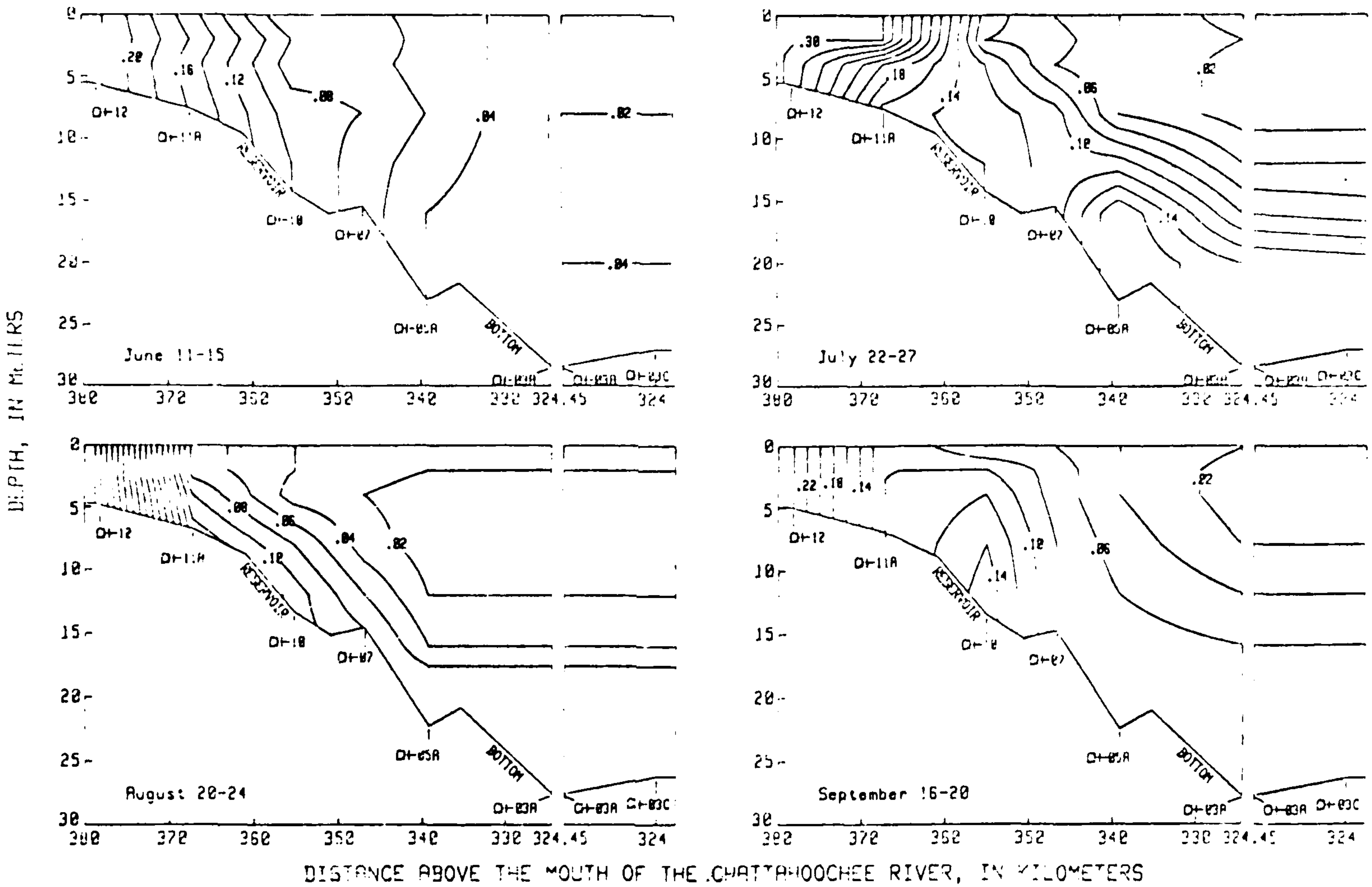


EXPLANATION

-0.06- LINE OF EQUAL TOTAL PHOSPHORUS CONCENTRATION - Interval 0.02 milligrams per liter

CH-25A WATER SAMPLING STATION

Total phosphorus concentration, August 1978 - May 1979

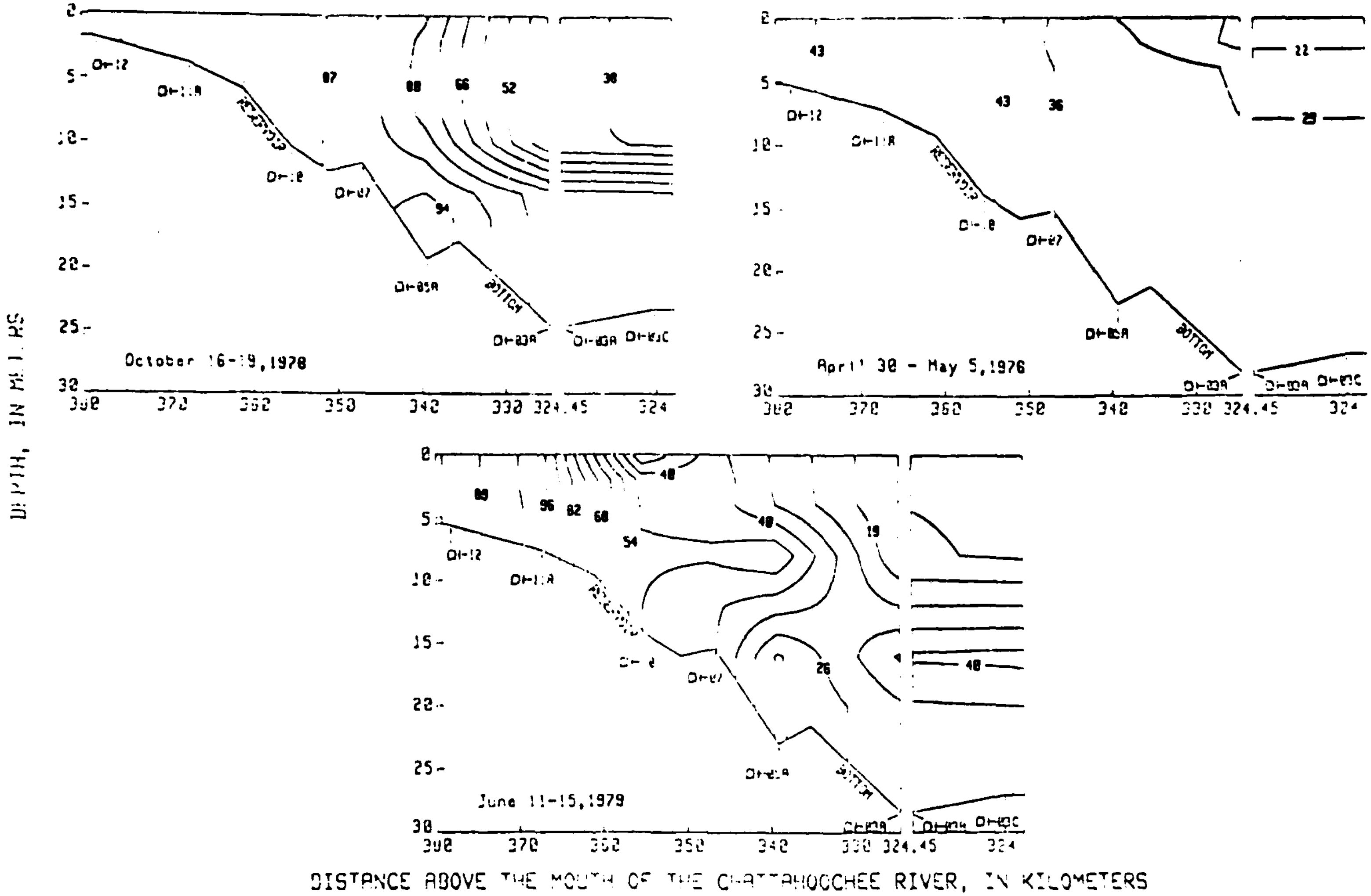


EXPLANATION

-0.26- LINE OF EQUAL TOTAL PHOSPHORUS CONCENTRATION - Interval 0.02 milligrams per liter

CH-05A WATER SAMPLING STATION

Total phosphorus concentration, June-September 1979

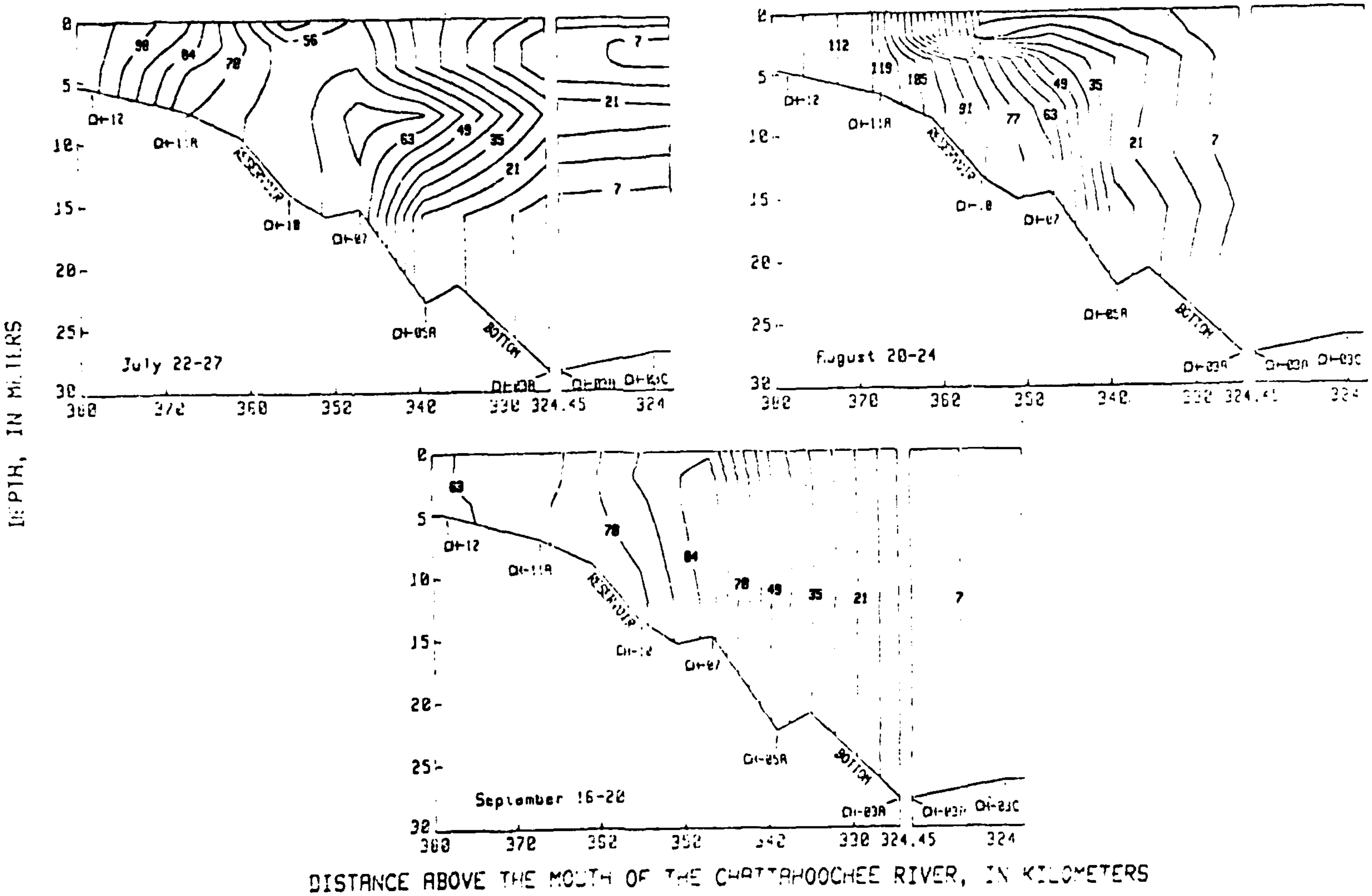


EXPLANATION

-0.80- LINE OF EQUAL TOTAL NITRITE PLUS NITRATE CONCENTRATION - Interval 0.07 milligrams per liter

CH-25A WATER SAMPLING STATION

Total nitrite plus nitrate concentration, October 1978 - June 1979

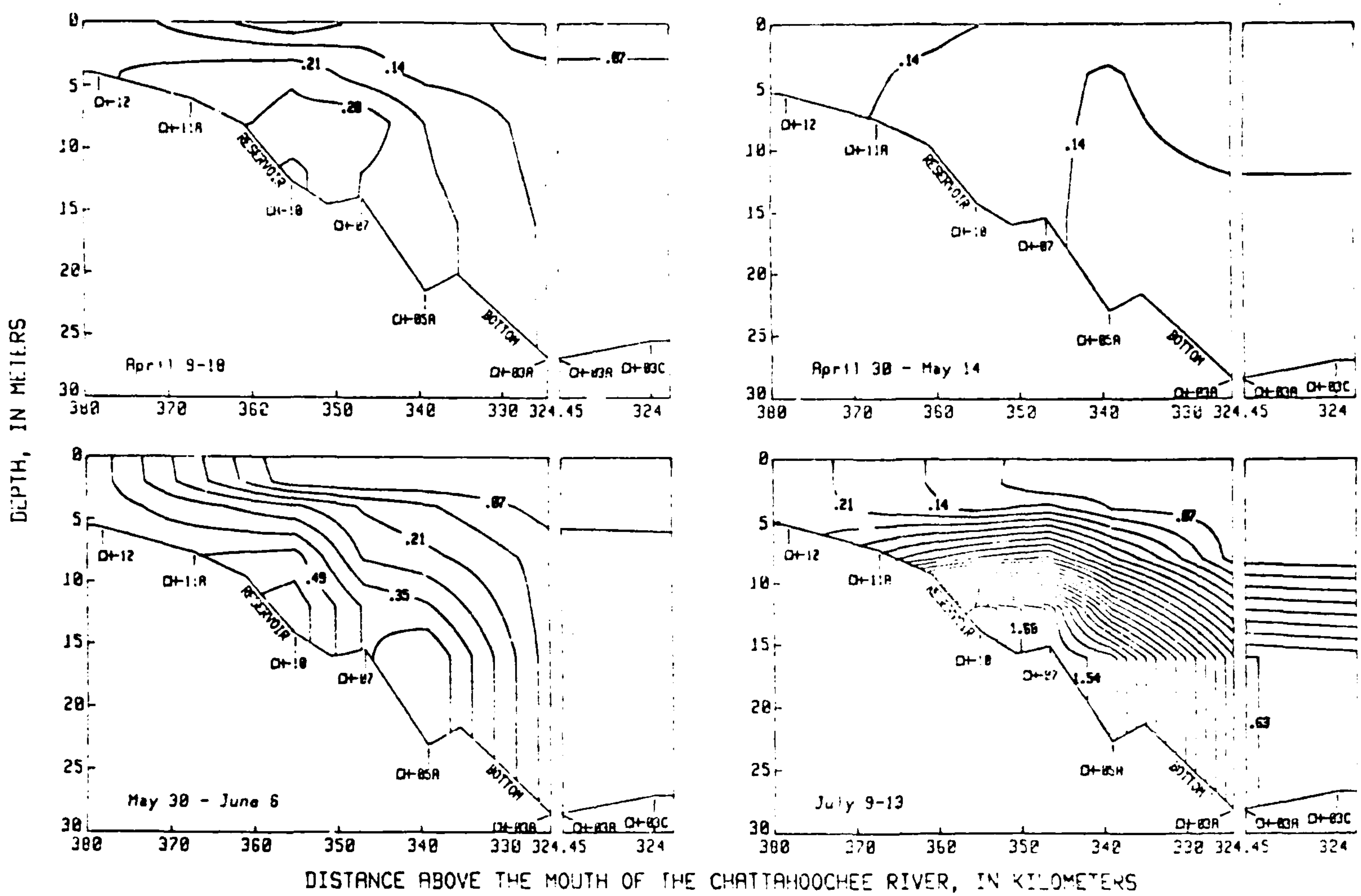


EXPLANATION

-0.70- LINE OF EQUAL TOTAL NITRITE PLUS NITRATE CONCENTRATION - Interval 0.07 milligrams per liter

CH-05A WATER SAMPLING STATION

Total nitrite plus nitrate concentration, July-September 1979

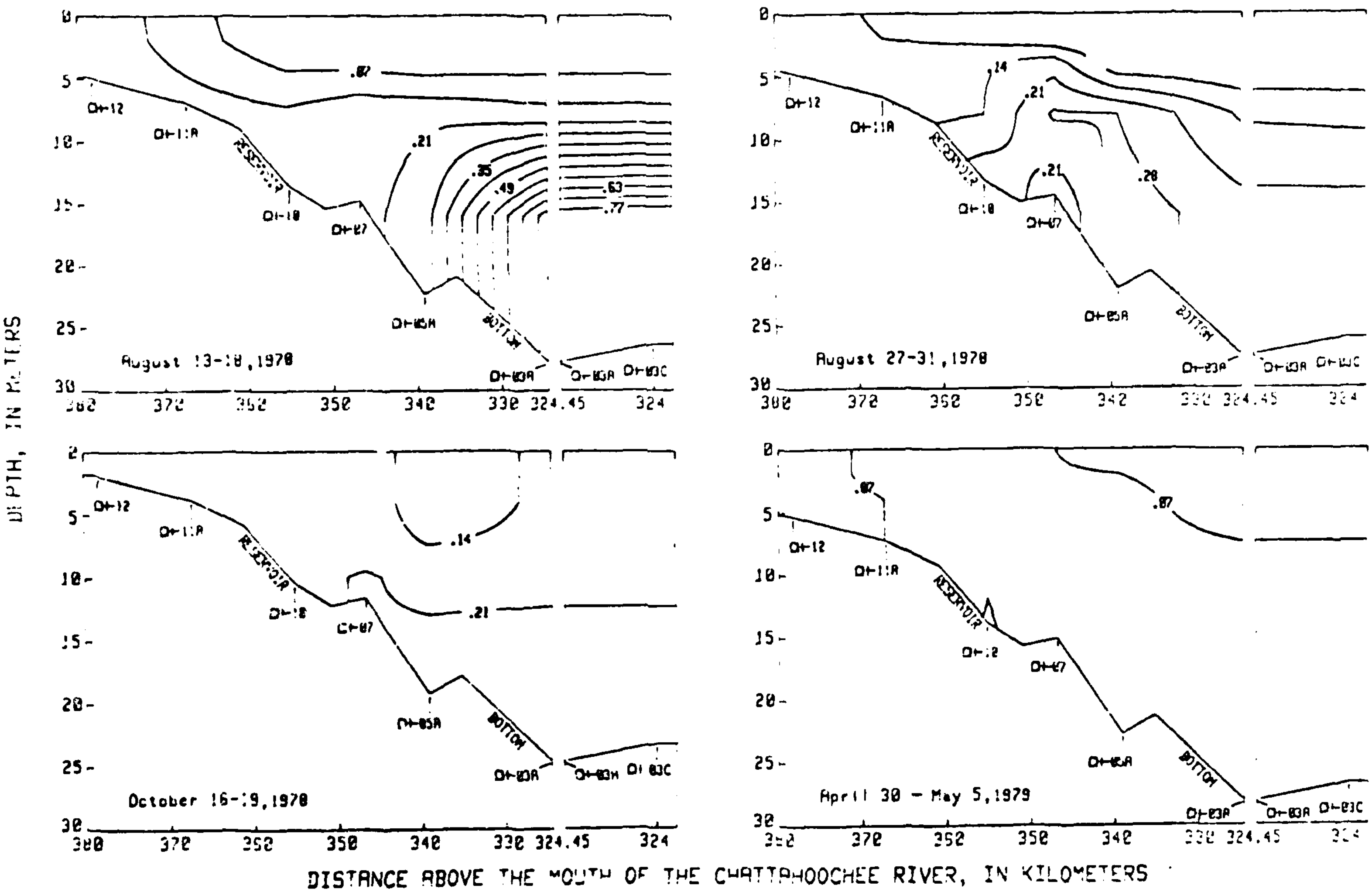


EXPLANATION

--0.14-- LINE OF EQUAL TOTAL AMMONIA CONCENTRATION - Interval 0.07 milligrams per liter

CH-05A WATER SAMPLING STATION

Total ammonia concentration, April-July 1978

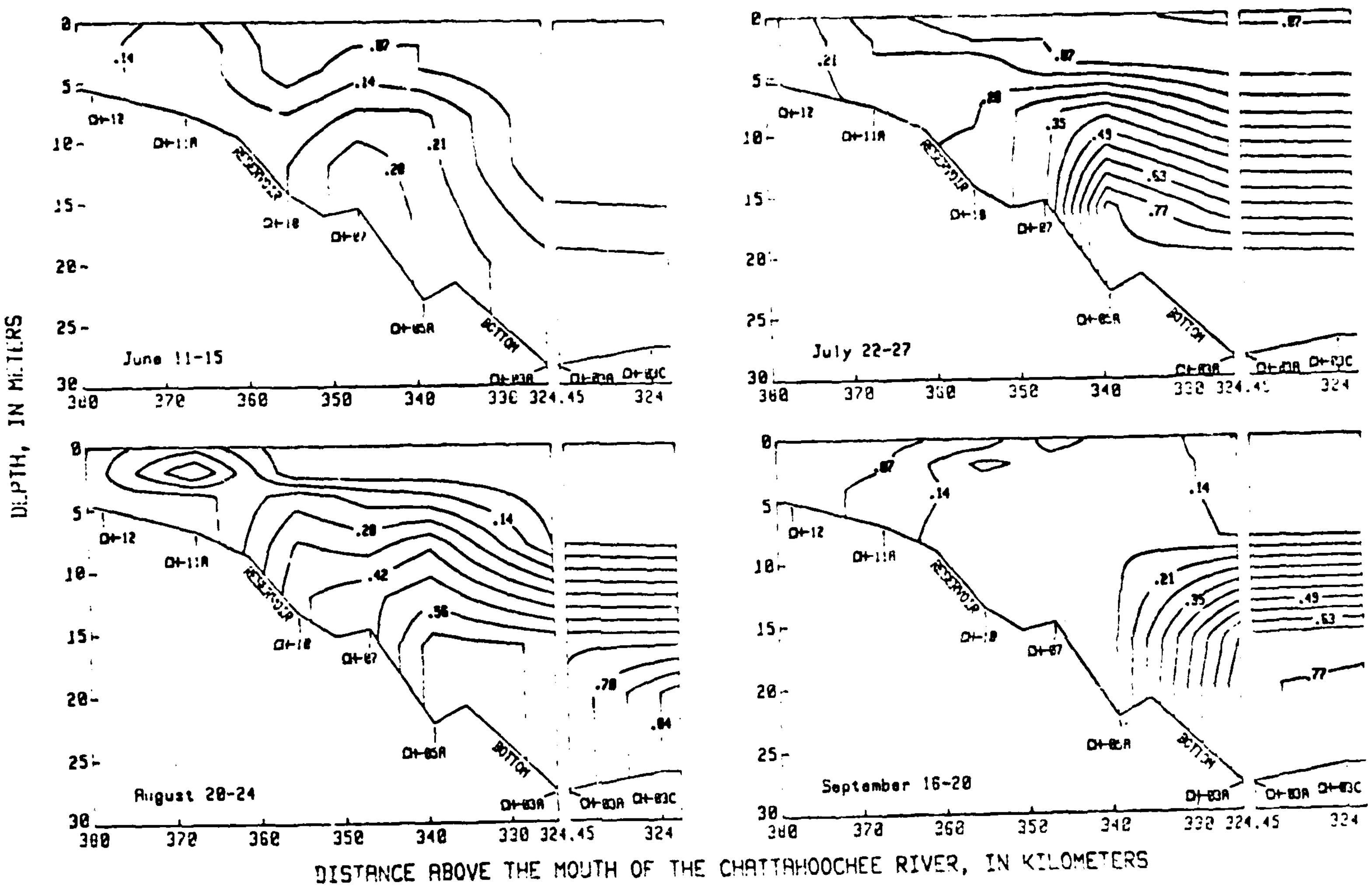


EXPLANATION

--0.14-- LINE OF EQUAL TOTAL AMMONIA CONCENTRATION - Interval 0.07 milligrams per liter

CH-05A WATER SAMPLING STATION

Total ammonia concentration, August 1978 - May 1979

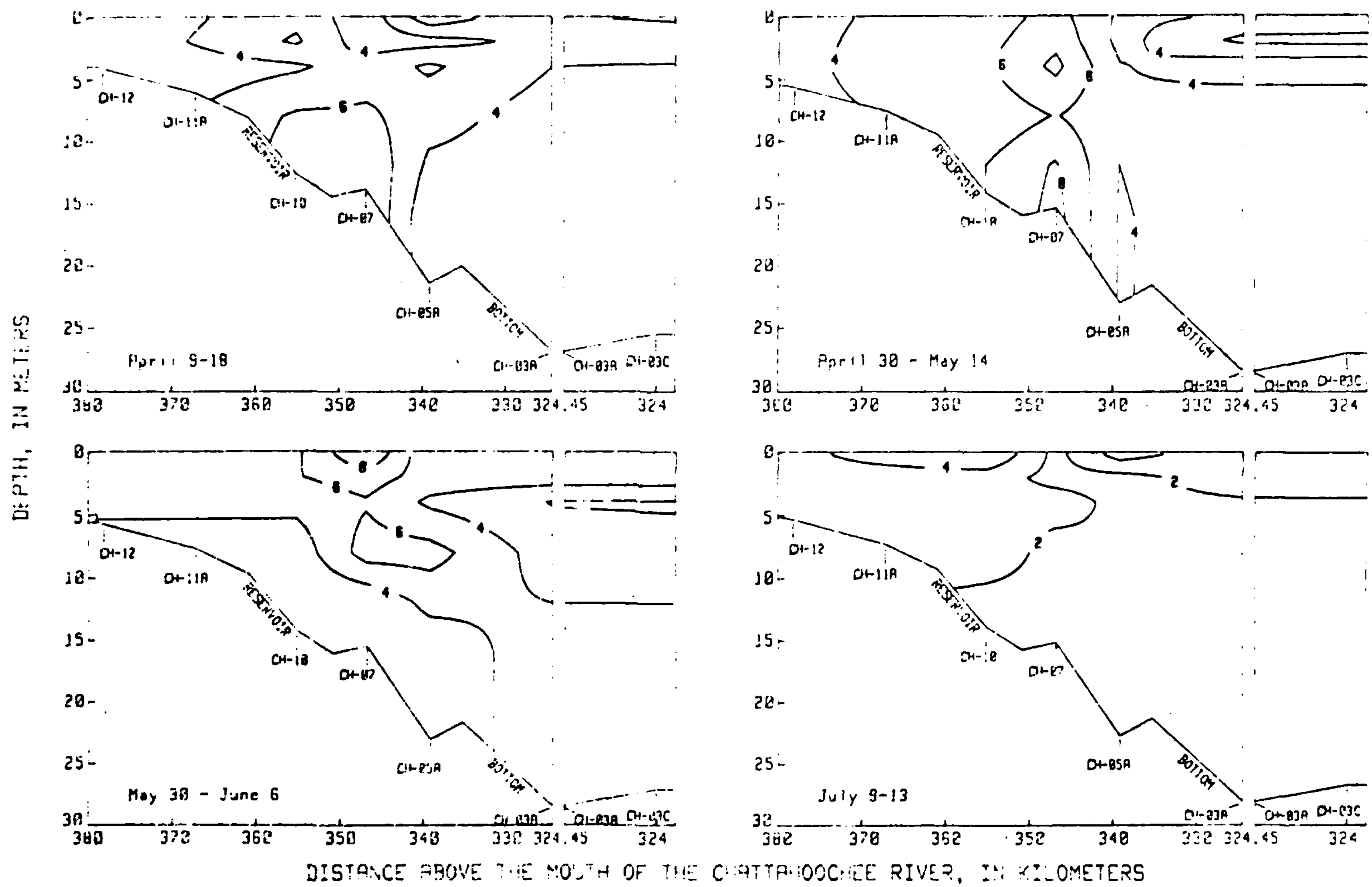


EXPLANATION

--0.28-- LINE OF EQUAL TOTAL AMMONIA CONCENTRATION - Interval 0.07 milligrams per liter

CH-05A WATER SAMPLING STATION

Total ammonia concentration, June-September 1979

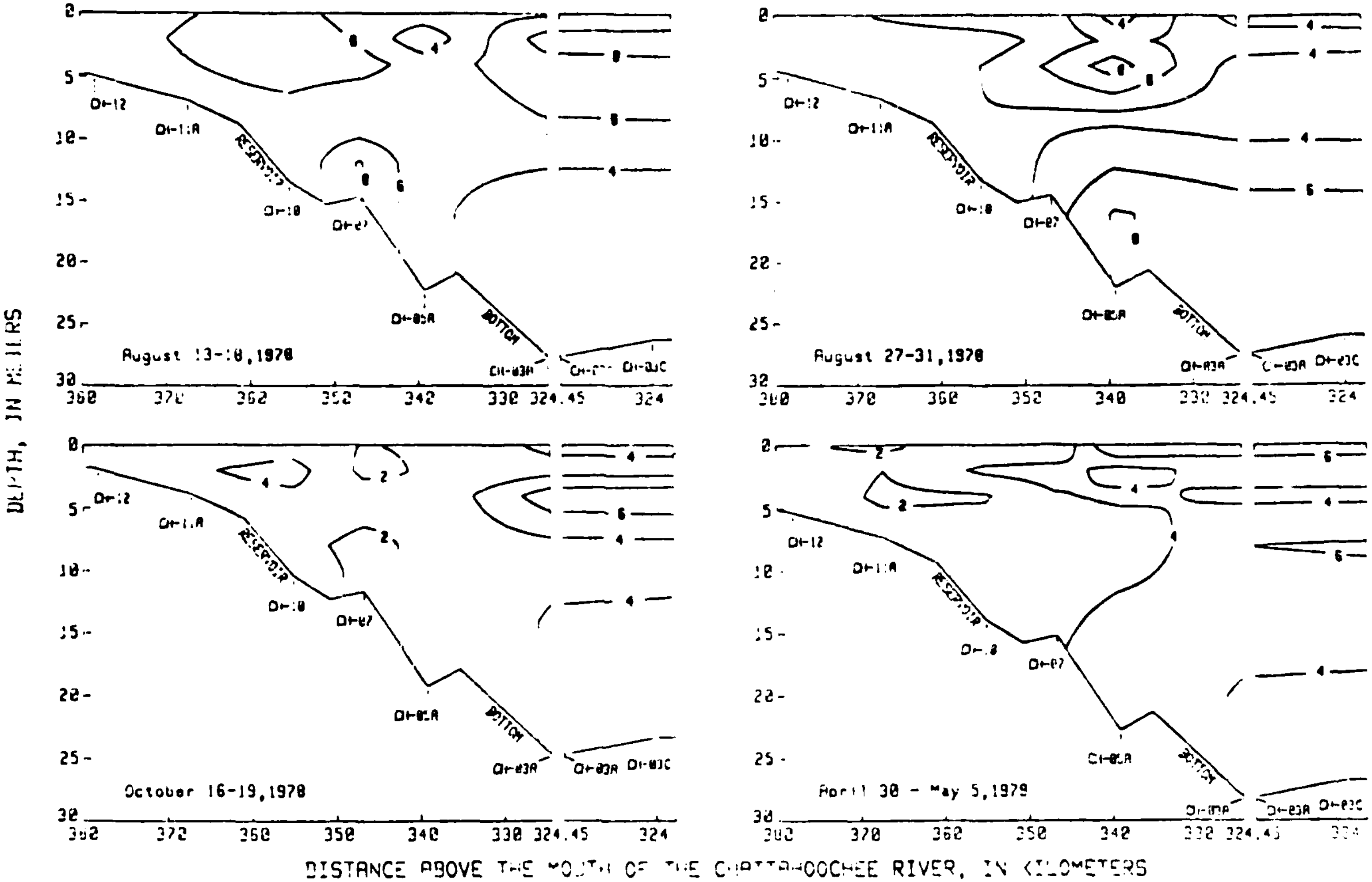


EXPLANATION

--6-- LINE OF EQUAL DISSOLVED ORGANIC CARBON CONCENTRATION - Interval 2 milligrams per liter

CH-05A WATER SAMPLING STATION

Dissolved organic carbon concentration, April-July 1978

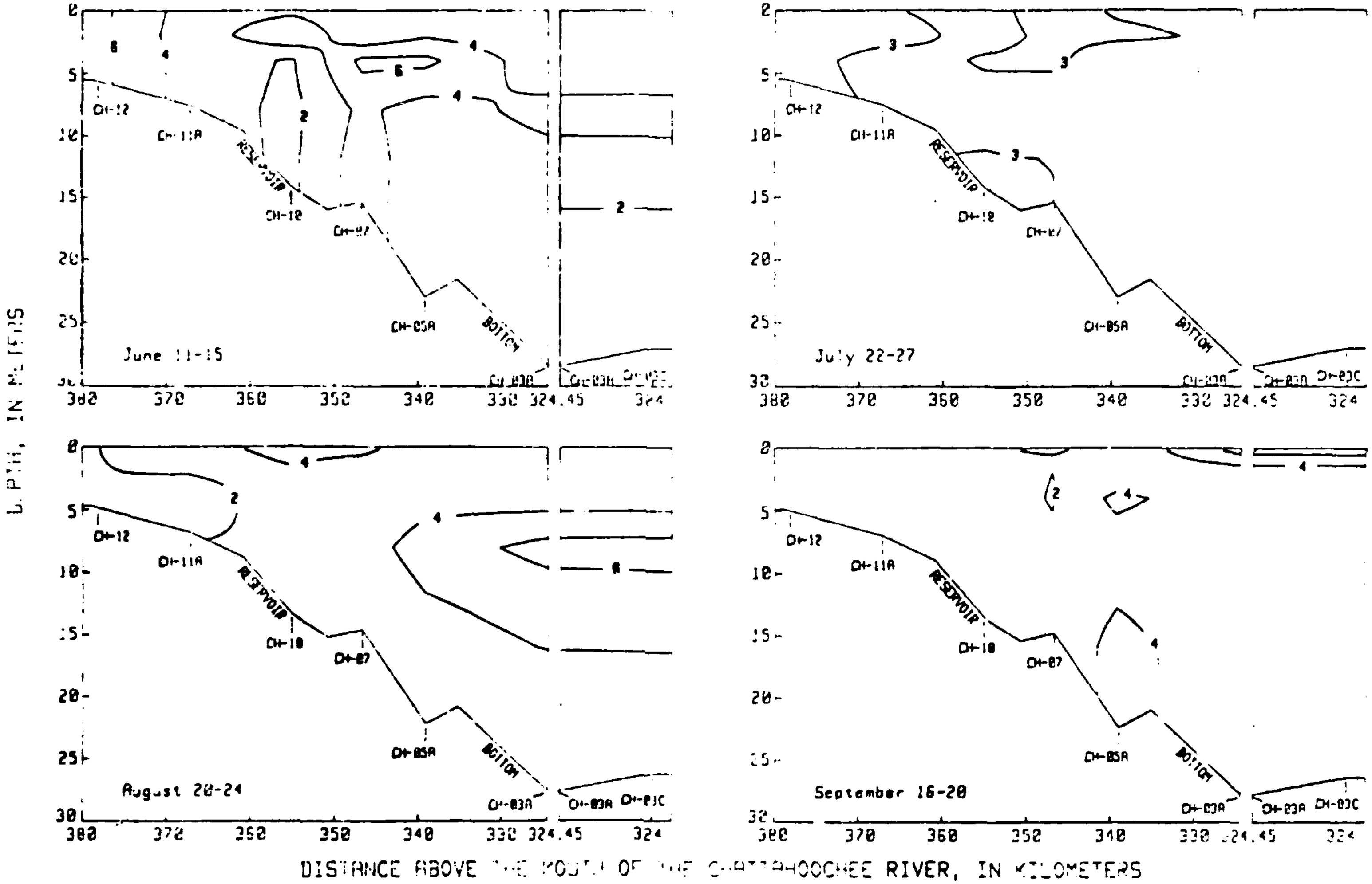


EXPLANATION

--6-- LINE OF EQUAL DISSOLVED ORGANIC CARBON CONCENTRATION - Interval 2 milligrams per liter

CH-25A WATER SAMPLING STATION

Dissolved organic carbon concentration, August 1978 - May 1979

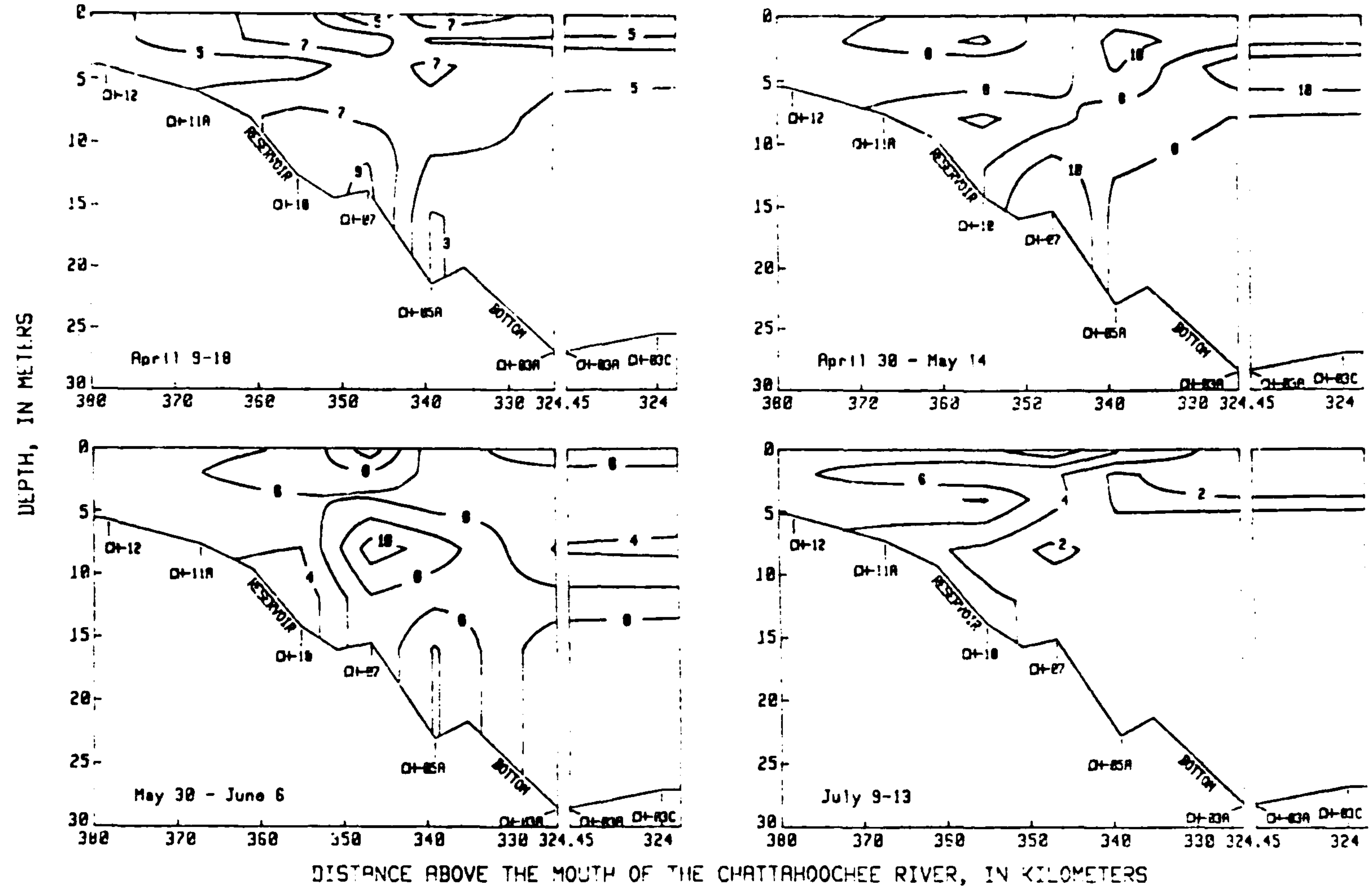


EXPLANATION

--4-- LINE OF EQUAL DISSOLVED ORGANIC CARBON CONCENTRATION - Interval 2 milligrams per liter

CH-05A WATER SAMPLING STATION

Dissolved organic carbon concentration, June-September 1979

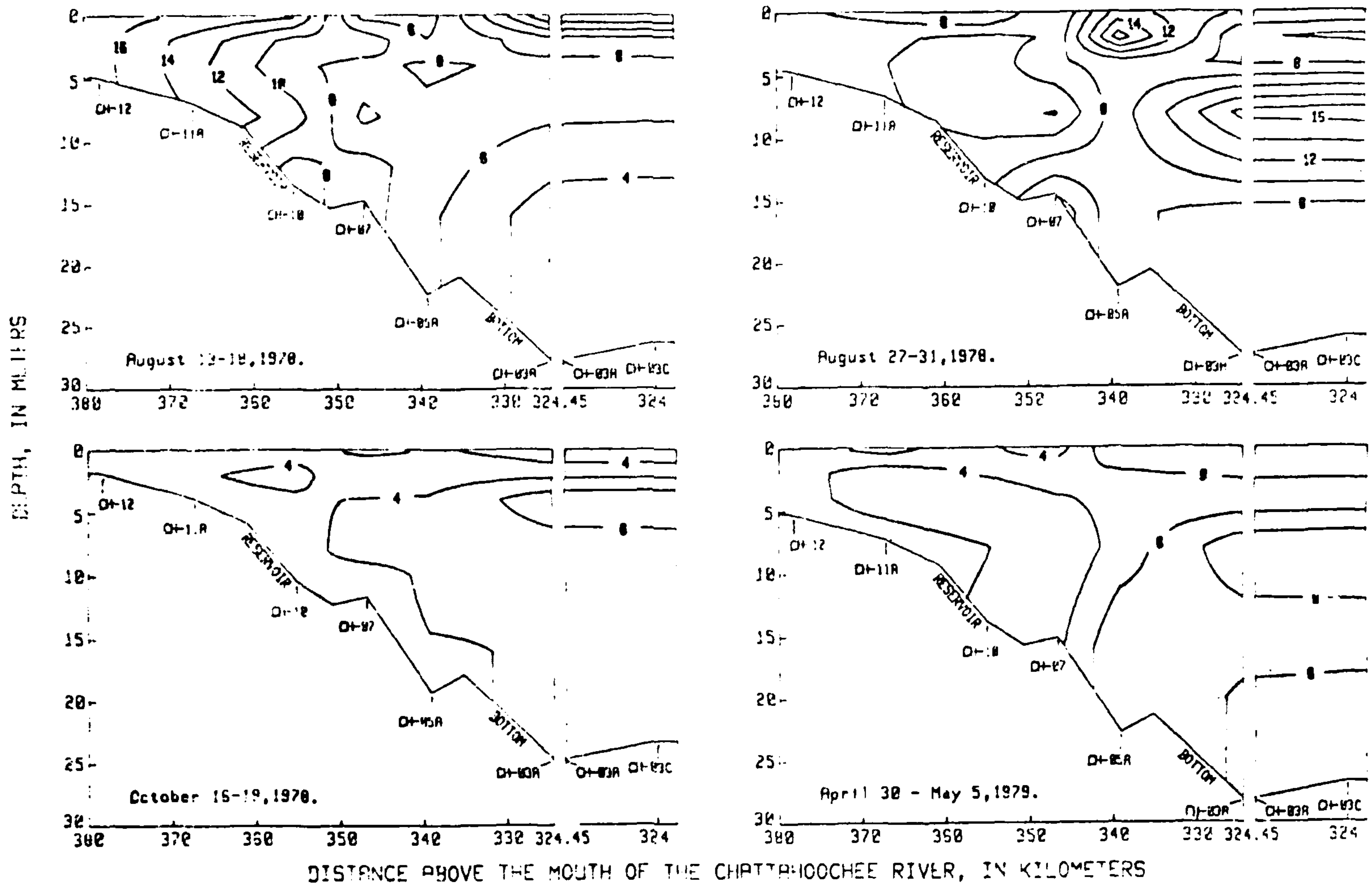


EXPLANATION

--5-- LINE OF EQUAL TOTAL ORGANIC CARBON CONCENTRATION - Interval 2 milligrams per liter

CH-05A WATER SAMPLING STATION

Total organic carbon concentration, April-July 1978

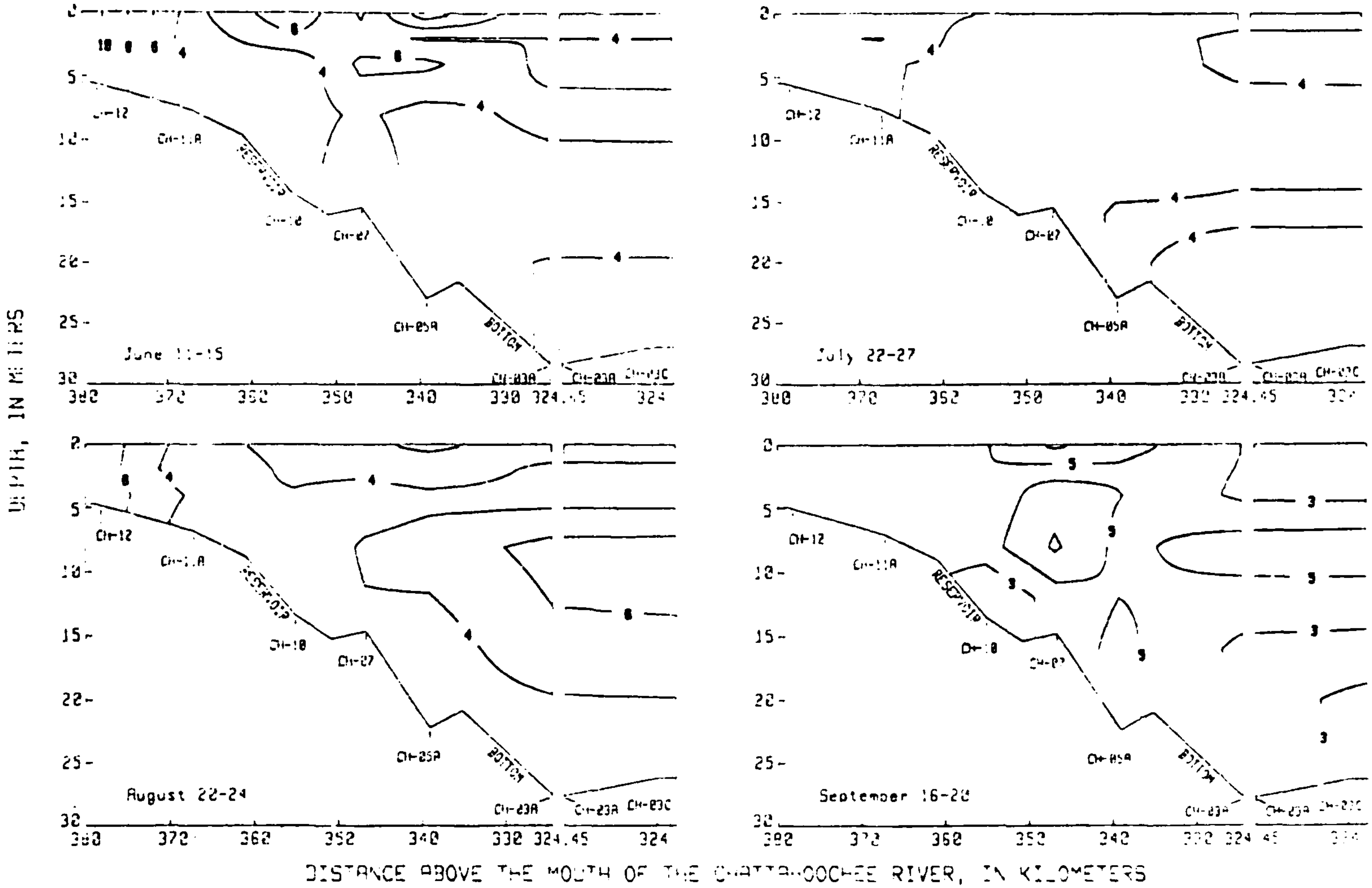


EXPLANATION

--6-- LINE OF EQUAL TOTAL ORGANIC CARBON CONCENTRATION - Interval 2 milligrams per liter

CH-03A WATER SAMPLING STATION

Total organic carbon concentration, August 1978 - May 1979



EXPLANATION

--4-- LINE OF EQUAL TOTAL ORGANIC CARBON CONCENTRATION - Interval 2 milligrams per liter

CH-05A WATER SAMPLING STATION

Total organic carbon concentration, June-September 1979

APPENDIX C-10

Metal concentrations in West Point Reservoir and the Chattahoochee River below West Point Dam, April 1978-December 1979

[Iron, total; iron, dissolved; manganese, total, and manganese, dissolved; calcium, total; magnesium, total; potassium, total; sodium, total; chloride, total; and zinc, total]

CH-12 (02338500) Chattahoochee River at U.S. Highway 27, at Franklin, Ga., 1978 and 1979

DATE	SAMPLING DEPTH (M)	CALCIUM TOTAL RECOVERABLE (MG/L AS CA)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA)	CHLORIDE, DISSOLVED (MG/L AS CL)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)
APR , 1978											
18...	1.0	3.3	1.1	1.6	5.4	4.9	1100	80	60	30	20
MAY											
08...	1.0	--	--	--	--	--	2400	50	100	30	50
JUN											
06...	1.0	--	--	--	--	--	1100	70	40	40	40
JUL											
13...	1.0	--	--	--	--	--	610	50	90	70	30
AUG											
17...	1.0	--	--	--	--	--	4800	20	130	20	40
31...	1.0	3.5	1.2	2.0	4.5	3.9	3700	30	80	20	30
OCT											
19...	1.0	--	--	--	--	--	1400	10	100	20	--
NOV											
30...	1.0	--	--	--	--	--	1300	90	80	30	--

DATE	SAMPLING DEPTH (M)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)
JAN , 1979					
24...	1.0	5400	60	200	30
MAR					
22...	1.0	1500	30	110	20
MAY					
03...	1.0	2100	120	140	30
JUN					
13...	1.0	2600	50	90	10
JUL					
26...	1.0	2400	60	110	30
AUG					
23...	1.0	2000	20	120	60
SEP					
20...	1.0	4100	40	200	20
OCT					
17...	1.0	2700	10	130	20
DEC					
13...	1.0	1600	10	90	40

[illegible] State [illegible]

DATE	SAMPLING DEPTH (M)	CALCIUM TOTAL RECOVERABLE (MG/L AS CA)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA)	CHLORIDE, DISSOLVED (MG/L AS CL)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)
APR., 1978											
17...	.20	3.5	1.1	1.7	5.5	4.3	610	40	60	0	60
17...	2.0	3.5	1.1	1.7	5.5	4.8	760	50	70	10	20
17...	4.0	3.3	1.2	1.7	5.4	5.0	1190	70	110	30	40
17...	8.0	3.2	1.0	1.6	5.5	3.8	1200	50	110	40	20
17...	11.0	3.3	1.0	1.7	5.2	4.3	1800	70	200	160	30
MAY											
02...	.20	--	--	--	--	--	2900	50	140	100	60
02...	2.0	--	--	--	--	--	3400	60	150	120	20
02...	4.0	--	--	--	--	--	4100	60	170	140	40
02...	8.0	--	--	--	--	--	4600	70	200	140	60
02...	12.0	--	--	--	--	--	4800	80	210	140	30
JUN											
05...	.20	--	--	--	--	--	280	--	60	0	40
05...	2.0	--	--	--	--	--	280	20	60	0	20
05...	4.0	--	--	--	--	--	580	10	110	20	40
05...	8.0	--	--	--	--	--	1200	160	--	710	40
05...	12.0	--	--	--	--	--	1200	440	--	1100	30
JUL											
12...	.20	--	--	--	--	--	250	80	40	0	10
12...	2.0	--	--	--	--	--	210	10	40	0	10
12...	4.0	--	--	--	--	--	320	20	50	0	10
12...	8.0	--	--	--	--	--	1200	30	700	700	10
12...	12.0	--	--	--	--	--	8700	6500	2500	2500	--
AUG											
16...	.20	--	--	--	--	--	290	10	30	10	30
16...	2.0	--	--	--	--	--	410	0	30	0	30
16...	4.0	--	--	--	--	--	1200	0	70	20	10
16...	8.0	--	--	--	--	--	2400	0	160	80	40
16...	11.0	--	--	--	--	--	3300	0	140	100	30
29...	.20	4.1	1.2	2.0	5.2	--	90	20	10	10	50
29...	2.0	4.1	1.2	2.0	5.1	4.4	140	10	20	0	50
29...	4.0	3.8	1.1	2.0	4.7	4.0	360	10	90	0	30
29...	8.0	3.6	1.1	2.0	4.4	3.5	1200	--	60	--	30
29...	11.0	3.6	1.2	2.0	4.3	3.5	2100	30	220	150	60
OCT											
17...	.20	--	--	--	--	--	1000	30	150	70	--
17...	2.0	--	--	--	--	--	1000	30	150	70	--
17...	4.0	--	--	--	--	--	1200	130	150	90	--
17...	8.0	--	--	--	--	--	1200	30	140	80	--
17...	10.0	--	--	--	--	--	1400	40	160	90	--
NOV											
29...	.20	--	--	--	--	--	1200	50	120	80	40
29...	9.0	--	--	--	--	--	910	80	120	90	--

DATE	SAMPLING DEPTH (M)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)
JAN., 1979					
24...	.20	2800	200	130	60
24...	11.0	3200	80	110	50
MAR					
21...	.20	880	40	160	100
21...	11.0	3300	100	520	180
MAY					
03...	.20	1000	40	100	90
03...	2.0	1000	40	100	80
03...	4.0	1100	90	110	80
03...	8.0	1300	100	120	80
03...	12.0	2000	160	150	100
JUN					
13...	.20	500	20	60	40
13...	2.0	500	10	80	0
13...	4.0	650	20	100	0
13...	8.0	1200	120	140	10
13...	12.0	1000	30	190	130
JUL					
26...	.20	210	20	30	0
26...	2.0	490	10	40	0
26...	4.0	1500	40	150	20
26...	8.0	2200	40	150	40
26...	12.0	2400	50	210	90
AUG					
22...	.20	.60	20	30	30
22...	2.0	200	20	30	0
22...	4.0	360	20	70	0
22...	8.0	700	30	280	80
22...	12.0	2300	20	480	410
SEP					
19...	.20	450	10	50	20
19...	2.0	470	30	100	40
19...	4.0	1300	50	130	50
19...	8.0	2000	50	190	110
19...	12.0	2200	340	210	150
OCT					
6...	.20	950	10	80	20
6...	12.0	1200	10	110	40
DEC					
12...	.20	980	50	190	170
12...	8.0	1300	70	200	170

CH-7 (02338720) Chattahoochee River (city of LaGrange intake) near LaGrange, Ga., 1978 and 1979

DATE	SAMPLING DEPTH (M)	CALCIUM TOTAL RECOVERABLE (MG/L AS CA)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA)	CHLORIDE, DISSOLVED (MG/L AS CL)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)
APR , 1978											
12...	.20	3.4	1.1	1.5	5.1	4.8	190	10	40	30	10
12...	2.0	3.5	1.1	1.6	5.0	4.9	260	10	50	10	20
12...	4.0	3.4	1.1	1.5	5.3	4.3	310	10	60	10	10
12...	8.0	3.6	1.1	1.5	4.8	4.1	450	10	190	90	20
12...	13.0	3.2	1.2	1.4	3.9	3.3	700	10	460	340	20
MAY											
04...	.20	--	--	--	--	--	2400	50	130	120	20
04...	2.0	--	--	--	--	--	2200	50	170	100	20
04...	4.0	--	--	--	--	--	2900	60	150	110	20
04...	8.0	--	--	--	--	--	3100	50	150	110	30
04...	11.0	--	--	--	--	--	5000	70	250	110	20
JUN											
01...	.20	--	--	--	--	--	140	10	30	0	30
01...	2.0	--	--	--	--	--	160	10	30	0	20
01...	4.0	--	--	--	--	--	200	10	50	0	20
01...	8.0	--	--	--	--	--	300	20	80	10	30
01...	12.0	--	--	--	--	--	1000	50	410	270	50
JUL											
11...	.20	--	--	--	--	--	170	20	20	0	20
11...	2.0	--	--	--	--	--	180	20	20	10	10
11...	4.0	--	--	--	--	--	180	60	30	10	20
11...	8.0	--	--	--	--	--	1100	50	1200	1100	20
11...	12.0	--	--	--	--	--	10000	5600	1900	1900	20
AUG											
17...	.20	--	--	--	--	--	90	10	20	0	50
17...	2.0	--	--	--	--	--	150	0	150	110	70
17...	4.0	--	--	--	--	--	250	10	30	10	300
17...	8.0	--	--	--	--	--	1700	30	120	40	110
17...	12.0	--	--	--	--	--	1700	30	120	70	30
29...	.20	3.9	1.2	2.1	5.0	4.5	110	0	10	0	20
29...	2.0	4.1	1.3	2.1	5.1	4.1	100	0	20	0	40
29...	4.0	4.1	1.[illegible]	2.1	5.6	4.5	170	0	40	0	70
29...	8.0	3.9	1.2	2.0	5.1	4.0	570	10	140	70	40
29...	12.0	3.7	1.2	2.0	4.7	3.8	2800	10	290	130	70
OCT											
17...	.20	--	--	--	--	--	600	20	110	40	--
17...	2.0	--	--	--	--	--	700	40	110	40	--
17...	4.0	--	--	--	--	--	1400	30	130	30	--
17...	8.0	--	--	--	--	--	670	30	120	40	--
17...	10.0	--	--	--	--	--	770	30	140	30	--
NOV											
29...	.20	--	--	--	--	--	740	80	100	60	--
29...	11.0	--	--	--	--	--	890	110	100	90	--

DATE	SAMPLING DEPTH (M)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)
JAN , 1979					
24...	.20	4200	40	190	110
24...	11.0	6300	250	550	140
MAR					
21...	.20	570	30	140	70
21...	12.0	1700	110	280	200
MAY					
02...	.20	1100	60	100	60
02...	2.0	1400	80	100	70
02...	4.0	1300	40	110	80
02...	8.0	1500	50	120	70
02...	14.0	2500	70	190	110
JUN					
12...	.20	470	50	70	20
12...	2.0	[illegible]	100	70	20
12...	4.0	770	60	80	0
12...	8.0	1300	80	180	90
12...	12.0	1100	60	760	720
JUL					
26...	.20	190	20	30	10
26...	2.0	230	10	30	0
26...	4.0	[illegible]	10	30	0
26...	8.0	1300	30	250	140
26...	12.0	1500	40	270	[illegible]
AUG					
22...	.20	190	20	20	0
22...	2.0	120	20	20	10
22...	4.0	190	20	20	0
22...	8.0	550	20	170	60
22...	12.0	960	50	410	120
SEP					
19...	.20	400	40	60	30
19...	2.0	340	0	40	0
19...	4.0	440	10	60	0
19...	8.0	690	10	70	0
19...	12.0	1100	20	100	50
OCT					
16...	.20	570	40	60	0
16...	12.0	860	40	90	20
DEC					
11...	.20	970	[illegible]	200	180
11...	12.0	1100	90	250	240

CH-05A (02339190) Chattahoochee River at State Highway 701, near Abbottsford, Ga., 1978 and 1979

DATE	SAMPLING DEPTH (M)	CALCIUM TOTAL RECOVERABLE (MG/L AS CA)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA)	CHLORIDE, DISSOLVED (MG/L AS CL)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)
APR , 1978											
12...	.20	3.2	1.0	1.5	4.8	4.3	120	0	10	10	10
12...	4.0	3.2	1.0	1.4	4.5	3.8	120	0	20	10	10
12...	8.0	3.2	1.1	1.4	4.4	4.3	300	0	90	40	20
12...	16.0	3.1	1.1	1.4	3.6	3.0	1300	20	490	440	10
MAY											
03...	.20	--	--	--	--	--	440	30	50	0	30
03...	2.0	--	--	--	--	--	550	40	60	0	20
03...	4.0	--	--	--	--	--	610	30	60	10	20
03...	8.0	--	--	--	--	--	610	30	60	10	30
03...	16.0	--	--	--	--	--	740	10	120	70	20
JUN											
01...	.20	--	--	--	--	--	170	10	20	0	30
01...	2.0	--	--	--	--	--	110	20	30	0	20
01...	4.0	--	--	--	--	--	150	10	30	0	50
01...	8.0	--	--	--	--	--	320	30	90	20	50
01...	16.0	--	--	--	--	--	1600	60	1800	1700	30
JUL											
11...	.20	--	--	--	--	--	155	0	20	0	50
11...	2.0	--	--	--	--	--	150	10	20	0	10
11...	4.0	--	--	--	--	--	210	50	20	10	10
11...	8.0	--	--	--	--	--	410	10	500	500	10
11...	16.0	--	--	--	--	--	10000	2900	3500	3500	20
AUG											
15...	.20	--	--	--	--	--	110	30	20	20	50
15...	2.0	--	--	--	--	--	120	20	20	20	--
15...	4.0	--	--	--	--	--	140	0	20	20	80
15...	8.0	--	--	--	--	--	570	120	50	10	60
15...	16.0	--	--	--	--	--	2600	30	180	130	90
30...	.20	3.9	1.2	1.9	5.4	4.2	50	10	10	0	30
30...	2.0	3.9	1.2	1.9	5.3	4.1	70	10	10	0	30
30...	4.0	3.7	1.2	1.8	5.0	4.1	50	10	10	0	40
30...	8.0	3.7	1.1	1.8	5.0	3.9	400	10	120	70	30
30...	16.0	3.6	1.1	1.7	4.8	3.8	1400	630	400	400	30
OCT											
16...	.20	--	--	--	--	--	80	20	50	10	--
16...	2.0	--	--	--	--	--	60	10	50	0	--
16...	4.0	--	--	--	--	--	80	10	50	0	--
16...	8.0	--	--	--	--	--	490	10	150	50	--
16...	16.0	--	--	--	--	--	1100	10	190	90	--
NOV											
28...	.20	--	--	--	--	--	330	40	90	30	--
28...	14.0	--	--	--	--	--	1200	50	140	90	--

DATE	SAMPLING DEPTH (M)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)
JAN , 1979					
23...	.20	1100	30	100	90
23...	14.0	960	30	100	80
MAR					
20...	.20	1100	110	130	80
20...	15.0	2300	140	240	210
MAY					
01...	.20	1700	50	90	90
01...	2.0	1400	50	80	40
01...	4.0	1600	60	90	30
01...	8.0	1700	40	80	30
01...	16.0	2400	30	120	70
JUN					
12...	.20	500	20	20	20
12...	2.0	490	30	0	0
12...	4.0	550	70	10	10
12...	8.0	780	30	110	50
12...	16.0	1300	320	1300	1300
JUL					
25...	.20	150	10	0	0
25...	2.0	130	10	0	0
25...	4.0	140	10	0	0
25...	8.0	340	20	90	10
25...	16.0	3300	1600	1700	1600
AUG					
22...	.20	150	30	20	10
22...	2.0	110	20	20	0
22...	4.0	130	20	40	10
22...	8.0	300	20	310	150
22...	16.0	1900	160	1100	1100
SEP					
18...	.20	440	60	80	20
14...	2.0	510	50	70	10
18...	4.0	600	50	60	10
18...	8.0	500	70	80	20
18...	16.0	1300	60	170	70
OCT					
16...	.20	290	20	30	0
16...	16.0	1100	50	170	30
DEC					
13...	.20	680	40	200	170
13...	16.0	1100	40	230	200

CH-03A (02339382) Chattahoochee River above coffer dam, above West Point Dam, 1978 and 1979

DATE	SAM-PLING DEPTH (M)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)
APR , 1978			
11...	.20	110	10
11...	2.0	90	10
11...	8.0	1200	40
11...	16.0	2100	30
MAY			
14...	.20	280	10
14...	2.0	230	10
14...	4.0	300	10
14...	8.0	290	10
14...	16.0	530	30
31...	.20	100	50
31...	2.0	130	10
31...	4.0	100	10
31...	8.0	150	30
31...	16.0	470	90
JUL			
10...	.20	550	40
10...	2.0	50	0
10...	4.0	100	10
10...	8.0	100	0
10...	16.0	1800	1200
AUG			
14...	.20	80	0
14...	2.0	80	10
14...	4.0	10	0
14...	8.0	80	10
14...	16.0	2500	200
30...	.20	50	50
30...	2.0	60	60
30...	4.0	70	10
30...	8.0	80	40
30...	16.0	710	80
OCT			
16...	.20	80	0
16...	2.0	100	10
16...	4.0	150	10
16...	8.0	140	10
16...	14.0	250	10
NOV			
28...	.20	290	50
28...	12.0	420	100

DATE	SAM-PLING DEPTH (M)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)
JAN , 1979			
22...	.20	310	30
22...	16.0	1100	30
MAR			
20...	.20	1200	10
20...	21.0	1300	0
MAY			
01...	.20	[illegible]	80
01...	2.0	1100	80
01...	4.0	930	120
01...	8.0	1100	70
01...	16.0	2100	60
01...	20.0	2200	110
JUN			
14...	.20	200	0
14...	2.0	100	0
14...	4.0	100	10
14...	8.0	120	10
14...	16.0	540	20
14...	20.0	2600	210
JUL			
24...	.20	170	40
24...	2.0	150	10
24...	4.0	120	10
24...	8.0	130	20
24...	16.0	2800	2600
24...	20.0	5400	5100
AUG			
21...	.20	60	60
21...	2.0	60	20
21...	4.0	70	20
21...	8.0	80	20
21...	16.0	4300	4000
21...	20.0	6600	6300
21...	24.0	8100	7700
SEP			
17...	.20	140	40
17...	2.0	190	40
17...	4.0	170	10
17...	8.0	180	10
17...	16.0	1800	40
17...	20.0	2700	280
OCT			
15...	.20	160	30
15...	2.0	170	0
15...	4.0	150	10
15...	8.0	190	10
15...	16.0	340	20
15...	20.0	920	30
DEC			
10...	.20	450	10
10...	20.0	620	0

CH-03B (02339387) Chattahoochee River east of coffer dam, above West Point Dam, 1978 and 1979

DATE	SAM-PLING DEPTH (M)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)
APR , 1978			
11...	.20	130	20
11...	2.0	100	10
11...	4.0	160	10
11...	8.0	190	10
11...	16.0	1900	30
MAY			
14...	.20	350	40
14...	2.0	210	10
14...	4.0	230	10
14...	8.0	1300	10
14...	16.0	650	30
31...	.20	110	10
31...	2.0	430	50
31...	4.0	130	50
31...	8.0	200	20
JUL			
10...	.20	80	0
10...	2.0	50	10
10...	4.0	80	20
10...	8.0	140	0
10...	16.0	1800	1500
AUG			
14...	.20	90	10
14...	2.0	120	10
14...	4.0	80	10
14...	8.0	80	10
14...	16.0	1400	190
30...	.20	80	20
30...	2.0	30	10
30...	4.0	60	10
30...	8.0	80	30
30...	16.0	1400	70
OCT			
16...	.20	140	10
16...	2.0	110	10
16...	4.0	80	10
16...	8.0	140	10
16...	16.0	470	30
16...	20.0	580	10
NOV			
28...	.20	330	30
28...	14.0	350	40

CH-03B (02339387) Chattahoochee River east of coffer dam, above West Point Dam, 1978 and 1979

DATE	SAMPLING DEPTH (M)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)
JAN , 1979			
22...	.20	320	30
22...	19.0	360	0
MAR			
20...	.20	1400	0
20...	20.0	1500	10
MAY			
01...	.20	1200	70
01...	2.0	1200	40
01...	4.0	1500	40
01...	8.0	1100	90
01...	16.0	1800	60
01...	20.0	2700	50
JUN			
14...	.20	110	20
14...	2.0	100	10
14...	4.0	100	10
14...	9.0	170	10
14...	16.0	530	20
14...	20.0	1900	120
JUL			
24...	.20	100	20
24...	2.0	140	10
24...	4.0	130	10
24...	8.0	120	10
24...	16.0	2400	1900
24...	20.0	5600	5400
AUG			
21...	.20	80	30
21...	2.0	70	10
21...	4.0	80	20
21...	8.0	60	10
21...	16.0	4200	3200
21...	20.0	6600	6000
SEP			
17...	.20	190	100
17...	2.0	220	10
17...	4.0	180	20
17...	8.0	180	10
17...	16.0	1700	40
17...	20.0	2300	180
OCT			
15...	.20	190	80
15...	2.0	220	20
15...	4.0	180	20
15...	8.0	200	0
15...	16.0	400	20
15...	20.0	740	40
DEC			
10...	.20	330	10
10...	20.0	620	0

CH-03C (02339388) Chattahoochee River below cofter dam, above West Point Dam, 1978 and 1979

DATE	SAM-PLING DEPTH (M)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)
APR., 1978											
10...	.20	3.0	.9	1.2	3.6	4.1	150	10	0	0	30
10...	2.0	3.1	1.0	1.2	3.7	3.8	70	10	10	10	20
10...	4.0	3.0	.9	1.2	3.6	3.4	70	0	10	0	30
10...	8.0	3.0	.9	1.3	3.8	3.6	240	0	30	10	70
10...	16.0	2.8	.9	1.2	3.5	3.8	770	10	130	60	40
MAY											
14...	.20	--	--	--	--	--	230	20	20	10	30
14...	2.0	--	--	--	--	--	250	10	20	0	40
14...	4.0	--	--	--	--	--	250	10	20	0	30
14...	8.0	--	--	--	--	--	240	10	210	10	10
14...	16.0	--	--	--	--	--	770	30	170	170	--
31...	.20	--	--	--	--	--	100	20	20	20	50
31...	2.0	--	--	--	--	--	80	10	20	10	50
31...	4.0	--	--	--	--	--	90	10	20	10	20
31...	8.0	--	--	--	--	--	150	30	20	10	40
31...	16.0	--	--	--	--	--	450	40	340	340	40
JUL											
10...	.20	--	--	--	--	--	60	20	20	10	30
10...	2.0	--	--	--	--	--	40	40	10	0	20
10...	4.0	--	--	--	--	--	210	20	20	0	60
10...	8.0	--	--	--	--	--	90	50	160	160	50
10...	16.0	--	--	--	--	--	1800	1800	1300	1300	40
AUG											
14...	.20	--	--	--	--	--	80	10	40	20	160
14...	2.0	--	--	--	--	--	120	10	40	0	60
14...	4.0	--	--	--	--	--	120	10	30	10	110
14...	8.0	--	--	--	--	--	130	10	120	0	30
14...	16.0	--	--	--	--	--	1300	0	1200	1200	60
30...	.20	4.0	1.3	1.8	5.5	4.5	60	10	20	20	30
30...	2.0	3.8	1.3	1.8	5.4	4.6	40	0	30	0	10
30...	4.0	4.0	1.2	1.8	5.4	4.5	50	10	20	0	0
30...	8.0	3.7	1.1	1.8	5.1	4.2	250	10	180	180	0
30...	16.0	3.6	1.1	1.8	4.4	3.4	850	50	370	370	--
OCT											
16...	.20	--	--	--	--	--	100	50	80	0	--
16...	2.0	--	--	--	--	--	100	10	80	0	--
16...	4.0	--	--	--	--	--	40	10	80	0	--
16...	8.0	--	--	--	--	--	80	10	90	0	--
16...	14.0	--	--	--	--	--	220	10	300	300	--
NOV											
28...	.20	--	--	--	--	--	310	30	110	30	--
28...	14.0	--	--	--	--	--	420	50	130	60	--

CH-03C (02339388) Chattahoochee River below coffer dam, above West Point Dam, 1978 and 1979

DATE	SAMPLING DEPTH (M)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)
JAN , 1979					
22...	.20	340	20	90	50
22...	15.0	260	0	90	50
MAR					
20...	.20	1300	80	70	40
20...	18.0	1400	60	50	20
MAY					
01...	.20	1100	80	40	40
01...	2.0	1300	40	30	0
01...	4.0	1300	40	30	0
01...	8.0	1100	30	50	0
01...	16.0	--	60	70	10
01...	20.0	1100	40	70	50
JUN					
14...	.20	160	0	0	0
14...	2.0	100	0	0	0
14...	4.0	250	0	0	0
14...	8.0	150	0	0	0
14...	16.0	340	0	170	30
14...	20.0	660	0	600	550
JUL					
24...	.20	110	10	10	10
24...	2.0	80	10	10	10
24...	4.0	100	20	0	0
24...	8.0	120	20	30	10
24...	16.0	2200	1800	1400	1400
24...	20.0	4600	4400	2000	2000
AUG					
21...	.20	100	20	20	0
21...	2.0	80	10	10	10
21...	4.0	100	30	20	0
21...	8.0	80	20	30	0
21...	16.0	1600	620	1000	870
21...	20.0	3100	3000	1500	1500
SEP					
17...	.20	150	20	80	0
17...	2.0	160	40	80	0
17...	4.0	200	20	70	10
17...	8.0	200	10	80	0
17...	16.0	1900	70	1100	1000
17...	20.0	2400	210	1200	1100
OCT					
15...	.20	320	50	50	30
15...	2.0	140	20	40	10
15...	4.0	230	50	50	0
15...	8.0	170	30	50	0
15...	16.0	440	50	110	60
15...	20.0	990	50	230	150
DEC					
10...	.20	250	20	60	10
10...	16.0	480	0	90	20

CH-4 (02339020) Yellowjacket Creek at Cameron Mill Road, near LaGrange, Ga., 1978 and 1979

DATE	SAMPLING DEPTH (M)	CALCIUM TOTAL RECOVERABLE (MG/L AS CA)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA)	CHLORIDE, DISSOLVED (MG/L AS CL)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)
APR , 1978											
17...	.20	1.6	1.0	1.3	3.8	3.4	230	10	20	3	20
17...	2.0	1.5	1.0	1.6	4.2	3.4	240	10	20	0	10
17...	4.0	1.0	1.0	1.5	4.7	3.2	210	0	30	0	0
17...	8.0	1.0	.9	1.4	3.5	2.0	230	30	40	10	30
MAY											
02...	.20	--	--	--	--	--	200	10	40	10	20
02...	2.0	--	--	--	--	--	160	10	40	0	30
02...	4.0	--	--	--	--	--	290	10	50	0	40
02...	8.0	--	--	--	--	--	620	20	160	80	10
JUN											
05...	.20	--	--	--	--	--	130	50	20	10	30
05...	2.0	--	--	--	--	--	150	10	20	0	10
05...	4.0	--	--	--	--	--	150	10	30	0	30
05...	8.0	--	--	--	--	--	540	50	430	330	30
JUL											
12...	.20	--	--	--	--	--	170	10	20	10	40
12...	2.0	--	--	--	--	--	220	50	20	0	30
12...	4.0	--	--	--	--	--	270	70	30	0	10
12...	8.0	--	--	--	--	--	900	190	1500	1100	50
12...	13.0	--	--	--	--	--	8800	3900	5700	5700	10
AUG											
15...	.20	--	--	--	--	--	310	10	40	10	50
15...	2.0	--	--	--	--	--	160	0	40	20	60
15...	4.0	--	--	--	--	--	110	10	90	10	90
15...	8.0	--	--	--	--	--	1000	10	190	50	100
15...	12.0	--	--	--	--	--	16000	15000	5200	5200	60
29...	.20	4.4	1.4	2.1	5.3	3.6	100	20	30	0	40
29...	2.0	4.4	1.4	2.1	5.1	4.0	100	0	30	0	50
29...	4.0	4.4	1.5	2.1	5.0	3.8	160	70	40	0	60
29...	8.0	4.6	1.3	2.1	5.0	3.8	350	80	1500	1300	50
29...	13.0	6.5	2.0	2.1	4.2	4.2	17000	16000	5100	5100	60
OCT											
17...	.20	--	--	--	--	--	350	10	310	150	--
17...	2.0	--	--	--	--	--	420	10	270	100	--
17...	4.0	--	--	--	--	--	530	20	250	90	--
17...	6.0	--	--	--	--	--	540	10	260	70	--
NOV											
29...	.20	--	--	-	--	--	410	40	170	50	--
29...	7.0	--	--	--	--	--	400	40	160	30	--

JAN , 1979					
23...	.20	680	20	130	60
23...	11.0	870	40	140	80
MAR					
21...	.20	1400	70	110	40
21...	11.0	2700	60	1100	960
MAY					
01...	.20	1400	80	40	10
01...	2.0	1400	50	40	0
01...	4.0	1000	40	60	10
01...	8.0	1300	50	100	40
01...	12.0	2200	90	2300	2200
JUN					
12...	.20	200	30	640	10
12...	2.0	260	20	40	10
12...	4.0	240	20	30	0
12...	8.0	830	30	50	0
12...	12.0	3500	3200	5100	700
JUL					
25...	.20	170	20	10	0
25...	2.0	170	20	10	0
25...	4.0	160	10	20	0
25...	8.0	310	60	360	360
25...	12.0	8500	7500	4300	4100
AUG					
22...	.20	190	10	30	10
22...	2.0	190	20	30	0
22...	4.0	240	30	40	0
22...	8.0	1900	1300	2200	2000
22...	12.0	12000	11000	4400	4400
SEP					
19...	.20	260	10	90	10
19...	2.0	290	20	90	0
19...	4.0	290	10	100	0
19...	8.0	520	10	230	100
19...	12.0	13000	12000	5200	5200
OCT					
16...	.20	300	10	60	0
16...	12.0	810	30	140	70
DEC					
12...	.20	330	0	310	210
12...	11.0	820	60	260	230

[illegible] Creek at State Highway [illegible], near [illegible], 1978 and 1979

DATE	SAMPLING DEPTH (M)	CALCIUM TOTAL RECOVERABLE (MG/L AS CA)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA)	CHLORIDE, DISSOLVED (MG/L AS CL)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)
APR , 1978											
11...	1.0	3.3	1.0	1.2	4.3	4.2	140	10	20	10	20
11...	16.0	2.6	.9	1.2	2.9	2.7	1200	40	330	320	20
MAY											
04...	.20	--	--	--	--	--	210	10	30	0	40
04...	2.0	--	--	--	--	--	140	100	30	0	40
04...	4.0	--	--	--	--	--	260	50	30	0	40
04...	8.0	--	--	--	--	--	190	10	20	0	30
04...	16.0	--	--	--	--	--	1900	50	1400	1200	30
31...	.20	--	--	--	--	--	10	10	30	0	60
31...	2.0	--	--	--	--	--	110	10	20	0	70
31...	4.0	--	--	--	--	--	150	10	30	0	20
31...	8.0	--	--	--	--	--	400	40	40	10	30
31...	16.0	--	--	--	--	--	1000	740	1300	1300	60
JUL											
10...	.20	--	--	--	--	--	90	10	20	10	30
10...	2.0	--	--	--	--	--	90	10	20	0	40
10...	4.0	--	--	--	--	--	120	10	20	0	20
10...	8.0	--	--	--	--	--	250	20	400	240	40
10...	16.0	--	--	--	--	--	1900	1800	2500	2500	50
AUG											
16...	.20	--	--	--	--	--	140	0	20	10	60
16...	2.0	--	--	--	--	--	190	20	20	0	20
16...	4.0	--	--	--	--	--	100	20	30	0	20
16...	8.0	--	--	--	--	--	110	0	40	0	10
16...	16.0	--	--	--	--	--	7000	2500	2100	1300	30
29...	.20	4.1	--	2.0	5.2	4.0	60	20	--	50	90
29...	2.0	4.2	1.3	2.0	5.4	4.3	100	10	10	0	50
29...	4.0	4.2	1.3	2.1	5.3	4.3	80	10	20	0	40
29...	9.0	4.3	1.2	2.1	5.2	4.4	130	10	270	220	10
29...	16.0	3.8	1.0	2.0	4.2	4.3	1400	20	460	240	80
OCT											
16...	.20	--	--	--	--	--	120	10	170	0	--
16...	2.0	--	--	--	--	--	150	0	170	0	--
16...	4.0	--	--	--	--	--	150	20	160	0	--
16...	8.0	--	--	--	--	--	180	10	160	0	--
16...	16.0	--	--	--	--	--	1100	20	250	170	--
NOV											
28...	.20	--	--	--	--	--	240	50	80	10	--
28...	16.0	--	--	--	--	--	1200	50	160	110	--

DATE	SAMPLING DEPTH (M)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)
JAN , 1979					
23...	.20	540	110	70	60
23...	16.0	670	60	100	70
MAR					
20...	.20	1000	90	40	10
20...	13.0	1000	140	80	60
APR					
30...	.20	560	90	40	20
30...	2.0	650	70	40	10
30...	4.0	910	60	90	40
30...	8.0	900	90	100	40
30...	16.0	1500	80	980	980
JUN					
14...	.20	230	0	10	0
14...	2.0	240	0	0	0
14...	4.0	370	0	0	0
14...	8.0	200	0	10	0
14...	16.0	1500	0	1200	1100
JUL					
25...	.20	130	10	0	0
25...	2.0	140	10	0	0
25...	4.0	110	10	0	0
25...	8.0	130	10	20	0
25...	16.0	3500	3500	1500	1500
AUG					
21...	.20	90	40	30	30
21...	2.0	100	40	30	0
21...	4.0	110	40	20	0
21...	8.0	140	30	90	20
21...	16.0	5100	5000	2100	2100
SEP					
18...	.20	270	10	70	20
18...	2.0	270	10	50	0
18...	4.0	240	60	50	10
18...	8.0	240	10	50	10
18...	16.0	4800	4200	2300	2300
OCT					
16...	.20	230	0	50	0
16...	16.0	1200	50	200	130
DEC					
11...	.20	260	20	90	30
11...	15.0	880	70	200	140

CH-2.5B (02339402) Chattahoochee River below West Point Dam, 1978 and 1979

DATE	SAMPLING DEPTH (M)	CALCIUM, TOTAL RECOVERABLE (MG/L AS CA)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA)	CHLORIDE, DISSOLVED (MG/L AS CL)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)
APR , 1978											
09...	.70	3.0	1.0	1.2	4.0	2.9	200	10	30	10	10
MAY											
01...	.70	--	--	--	--	--	1100	10	120	60	20
01...	1.0	--	--	--	--	--	370	50	[illegible]	110	20
30...	.70	--	--	--	--	--	480	40	260	280	50
30...	1.0	--	--	--	--	--	450	30	140	120	40
JUL											
09...	.70	--	--	--	--	--	620	260	310	310	50
10...	1.0	--	--	--	--	--	1900	1900	1200	1200	10
AUG											
13...	.70	--	--	--	--	--	890	20	310	310	30
14...	1.0	--	--	--	--	--	570	130	440	440	240
27...	.70	4.2	1.3	2.0	5.6	4.5	240	150	110	100	20
28...	1.0	4.1	1.2	2.1	5.2	4.0	340	50	240	240	80
OCT											
18...	.70	--	--	--	--	--	140	0	110	20	--
19...	1.0	--	--	--	--	--	170	10	140	40	--
NOV											
27...	.70	--	--	--	--	--	700	0	310	220	--
28...	1.0	--	--	--	--	--	300	80	110	10	--

DATE	SAMPLING DEPTH (M)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)
JAN , 1979					
22...	1.0	340	0	90	50
MAR					
19...	1.0	1400	40	90	30
19...	.70	1400	80	80	20
APR					
30...	1.0	1500	90	110	60
MAY					
02...	.70	700	120	120	80
JUN					
11...	.70	350	10	130	120
11...	1.0	300	10	130	120
JUL					
23...	.70	760	310	[illegible]	290
23...	1.0	1200	810	750	750
AUG					
20...	.70	1700	1200	760	760
20...	1.0	1300	1100	640	640
SEP					
16...	.70	440	40	200	150
17...	1.0	500	10	220	150
OCT					
14...	.70	210	30	60	10
15...	1.0	260	20	50	10
DEC					
09...	.70	360	0	60	10
10...	1.0	330	0	70	10

CH-01A (02339500) Chattahoochee River at West Point, Ga., 1978 and 1979

DATE	SAMPLING DEPTH (M)	CALCIUM TOTAL RECOVERABLE (MG/L AS CA)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA)	CHLORIDE, DISSOLVED (MG/L AS CL)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)
APR . 1978											
09...	.70	3.3	1.2	1.1	3.8	2.8	420	--	70	50	0
13...	1.0	3.0	1.0	1.4	3.8	2.9	490	10	80	70	20
MAY											
01...	1.0	--	--	--	--	--	1200	0	230	170	10
14...	.70	--	--	--	--	--	520	10	130	130	20
30...	.70	--	--	--	--	--	540	30	230	230	40
30...	1.0	--	--	--	--	--	740	20	260	260	60
JUL											
09...	.70	--	--	--	--	--	560	80	280	280	40
10...	1.0	--	--	--	--	--	1860	260	1000	510	30
AUG											
13...	.70	--	--	--	--	--	1300	100	210	210	40
14...	1.0	--	--	--	--	--	880	190	560	560	90
27...	.70	--	--	--	--	--	320	20	70	30	40
28...	1.0	4.3	1.2	2.1	5.6	4.0	540	100	260	260	50
OCT											
18...	.70	--	--	--	--	--	150	10	100	20	--
19...	1.0	--	--	--	--	--	340	10	140	30	--
NOV											
27...	.70	--	--	--	--	--	--	--	--	--	--
28...	1.0	--	--	--	--	--	680	40	140	50	--

DATE	SAMPLING DEPTH (M)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)
JAN . 1979					
22...	1.0	630	10	110	50
MAR					
13...	1.0	1700	40	90	50
19...	.70	1400	30	80	20
APR					
30...	1.0	1500	110	110	50
MAY					
02...	.70	1100	130	130	80
JUN					
11...	.70	370	10	110	110
11...	1.0	290	20	140	130
JUL					
23...	.70	870	100	270	270
23...	1.0	1200	600	730	730
AUG					
20...	.70	1500	850	710	710
20...	1.0	1200	810	580	570
SEP					
16...	.70	420	50	130	80
17...	1.0	510	30	220	150
OCT					
14...	.70	210	10	40	10
15...	1.0	380	10	90	10
DEC					
03...	.70	320	20	60	20
10...	1.0	360	0	70	10

CH-018 (02339550) Chattahoochee River (city of Lanett intake) at Lanett, Ala., 1978 and 1979

DATE	SAMPLING DEPTH (M)	CALCIUM TOTAL RECOVERABLE (MG/L AS CA)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA)	CHLORIDE, DISSOLVED (MG/L AS CL)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)
APR , 1978											
09...	.70	3.1	1.0	1.2	4.0	3.3	280	20	40	20	20
13...	1.0	2.8	1.0	1.3	3.8	2.9	610	20	90	50	30
MAY											
01...	1.0	--	--	--	--	--	740	--	200	200	10
14...	.70	--	--	--	--	--	740	50	130	130	40
30...	.70	--	--	--	--	--	530	30	210	200	60
30...	1.0	--	--	--	--	--	790	30	280	280	50
JUL											
09...	.70	--	--	--	--	--	550	350	240	220	50
10...	1.0	--	--	--	--	--	1900	1100	1100	1100	20
AUG											
13...	.70	--	--	--	--	--	930	80	230	230	50
14...	1.0	--	--	--	--	--	1000	300	640	640	30
27...	.70	4.4	1.3	2.0	5.6	4.4	260	0	50	20	120
28...	1.0	4.4	1.2	2.1	5.3	4.1	450	20	250	240	40
OCT											
18...	.70	--	--	--	--	--	130	10	90	20	--
19...	1.0	--	--	--	--	--	240	10	150	30	--
NOV											
27...	.70	--	--	--	--	--	480	20	210	150	--
28...	1.0	--	--	--	--	--	790	20	180	40	--

DATE	SAMPLING DEPTH (M)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)
JAN , 1979					
22...	1.0	530	30	110	40
MAR					
19...	1.0	1700	410	90	80
19...	.70	1500	120	80	30
APR					
30...	1.0	1600	100	110	50
MAY					
02...	.70	1100	100	110	60
JUN					
11...	.70	290	0	70	70
11...	1.0	400	30	110	110
JUL					
23...	.70	920	140	270	220
23...	1.0	1100	660	750	750
AUG					
20...	.70	1200	330	500	500
20...	1.0	1200	800	640	630
SEP					
16...	.70	320	30	80	40
17...	1.0	550	20	210	120
OCT					
14...	.70	300	20	50	20
15...	1.0	510	20	100	20
DEC					
09...	.70	360	0	60	30
10...	1.0	440	0	70	10

CH-01C (02339560) Chattahoochee River above junction of Long Cane Creek, near West Point, Al., 1978 and 1979

DATE	SAM-PLING DEPTH (M)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)
APR , 1978											
09...	.70	3.2	2.1	1.3	4.8	3.3	270	10	40	20	20
MAY											
01...	1.0	--	--	--	--	--	550	20	190	150	20
14...	.70	--	--	--	--	--	490	30	100	90	20
30...	.70	--	--	--	--	--	500	30	220	220	50
30...	1.0	--	--	--	--	--	690	30	260	260	40
JUL											
09...	.70	--	--	--	--	--	560	50	180	90	20
10...	1.0	--	--	--	--	--	1890	190	710	540	30
AUG											
13...	.70	--	--	--	--	--	1600	80	230	180	40
14...	1.0	--	--	--	--	--	1200	190	680	680	140
27...	.70	4.4	1.4	2.0	6.6	4.5	210	0	40	10	30
28...	1.0	4.1	1.2	2.1	5.1	3.9	630	30	280	280	30
OCT											
18...	.70	--	--	--	--	--	170	10	100	20	--
19...	1.0	--	--	--	--	--	330	0	150	20	--
NOV											
27...	.70	--	--	--	--	--	630	0	220	130	--
28...	1.0	--	--	--	--	--	1300	40	210	50	--

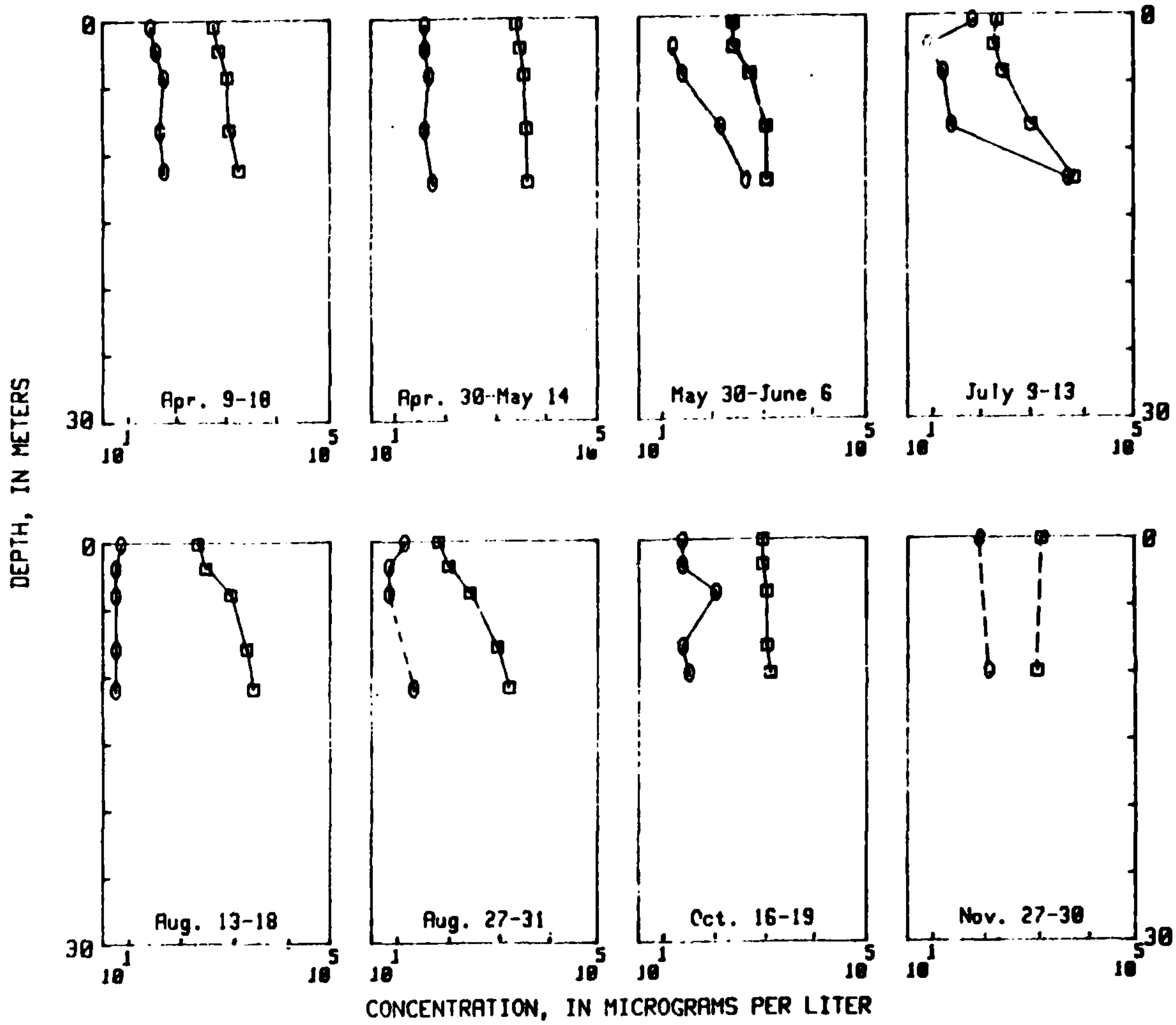
DATE	SAM-PLING DEPTH (M)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
JAN , 1979					
22...	1.0	730	40	110	40
MAR					
19...	1.0	1700	90	100	20
19...	.70	1500	70	70	30
APR					
30...	1.0	--	80	--	70
MAY					
02...	.70	1100	80	110	50
JUN					
11...	.70	340	10	40	30
11...	1.0	320	20	110	100
JUL					
23...	.70	1100	120	430	430
23...	1.0	1200	330	640	630
AUG					
20...	.70	820	110	340	290
20...	1.0	1300	530	740	740
SEP					
16...	.70	280	30	70	10
17...	1.0	1900	310	440	220
OCT					
14...	.70	190	40	30	20
15...	1.0	390	40	80	20
DEC					
09...	.70	380	0	60	20
10...	1.0	500	0	80	10

DATE	SAM-PLING DEPTH (M)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)
APR , 1978											
09...	.70	3.2	1.1	1.2	5.0	3.7	340	10	60	40	10
MAY											
01...	1.0	--	--	--	--	--	1100	20	210	130	10
14...	.70	--	--	--	--	--	600	40	120	110	10
30...	.70	--	--	--	--	--	570	30	240	240	40
30...	1.0	--	--	--	--	--	750	30	250	230	50
JUL											
09...	.70	--	--	--	--	--	590	80	100	50	20
10...	1.0	--	--	--	--	--	1550	250	960	840	20
AUG											
13...	.70	--	--	--	--	--	1300	90	180	150	30
14...	1.0	--	--	--	--	--	1100	130	730	730	50
27...	.70	4.4	1.4	2.0	7.3	6.0	320	0	70	20	30
28...	1.0	4.3	1.2	2.1	5.3	4.4	490	10	290	280	30
OCT											
18...	.70	--	--	--	--	--	150	130	90	20	--
19...	1.0	--	--	--	--	--	560	10	200	20	--
NOV											
27...	.70	--	--	--	--	--	580	10	180	110	--
28...	1.0	--	--	--	--	--	2100	40	280	30	--

DATE	SAM-PLING DEPTH (M)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
JAN , 1979					
22...	1.0	1000	10	140	40
MAR					
19...	1.0	1700	40	100	10
19...	.70	1600	70	80	20
APR					
30...	1.0	1800	70	110	30
MAY					
02...	.70	1300	90	110	40
JUN					
11...	.70	380	10	30	30
11...	1.0	640	20	90	90
JUL					
23...	.70	1500	130	410	390
23...	1.0	2500	210	430	160
AUG					
20...	1.0	1400	410	700	690
21...	.70	940	180	640	640
SEP					
16...	.70	340	30	90	10
17...	1.0	910	30	240	110
OCT					
14...	.70	320	20	60	30
15...	1.0	910	20	170	10
DEC					
09...	.70	420	20	70	40
10...	1.0	640	0	90	10

APPENDIX C-11

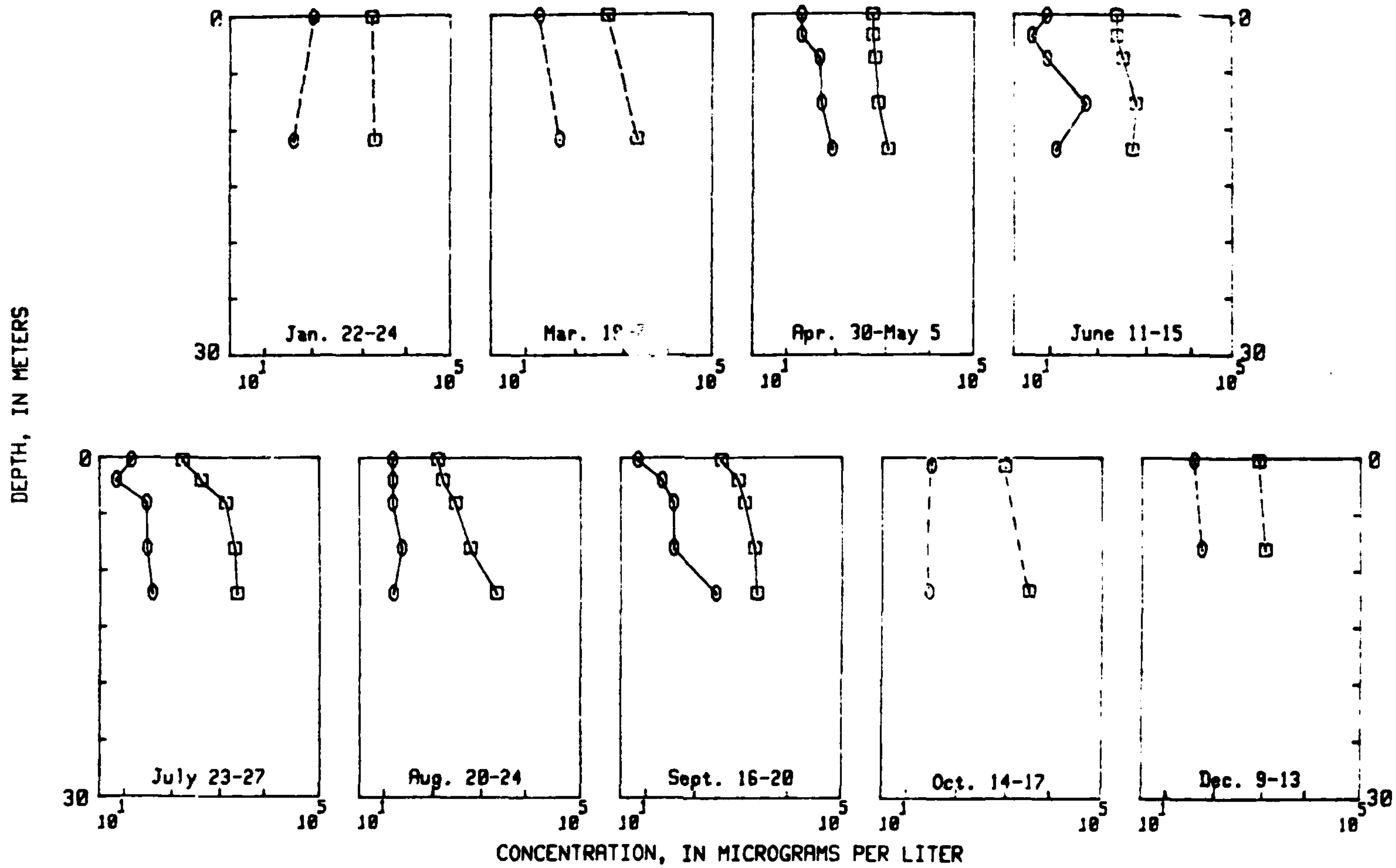
Graphs showing variations in iron concentrations with reservoir depth at stations in West Point Reservoir, April 1978-December 1979



EXPLANATION

O-Dissolved iron
□-Total iron

CH-10 (02338710) Chattahoochee River at State Highway 219, near LaGrange, Ga., 1978

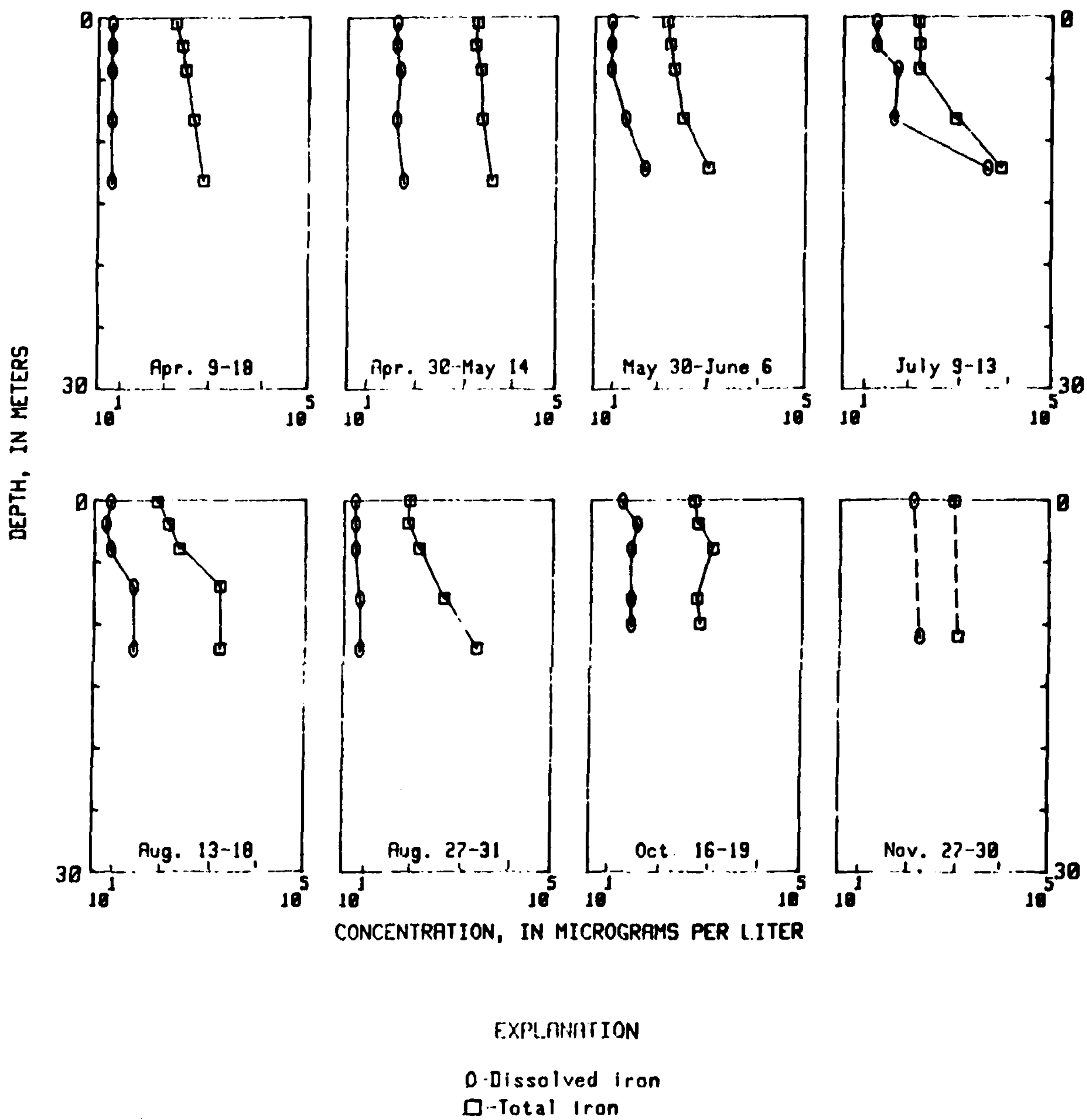


EXPLANATION

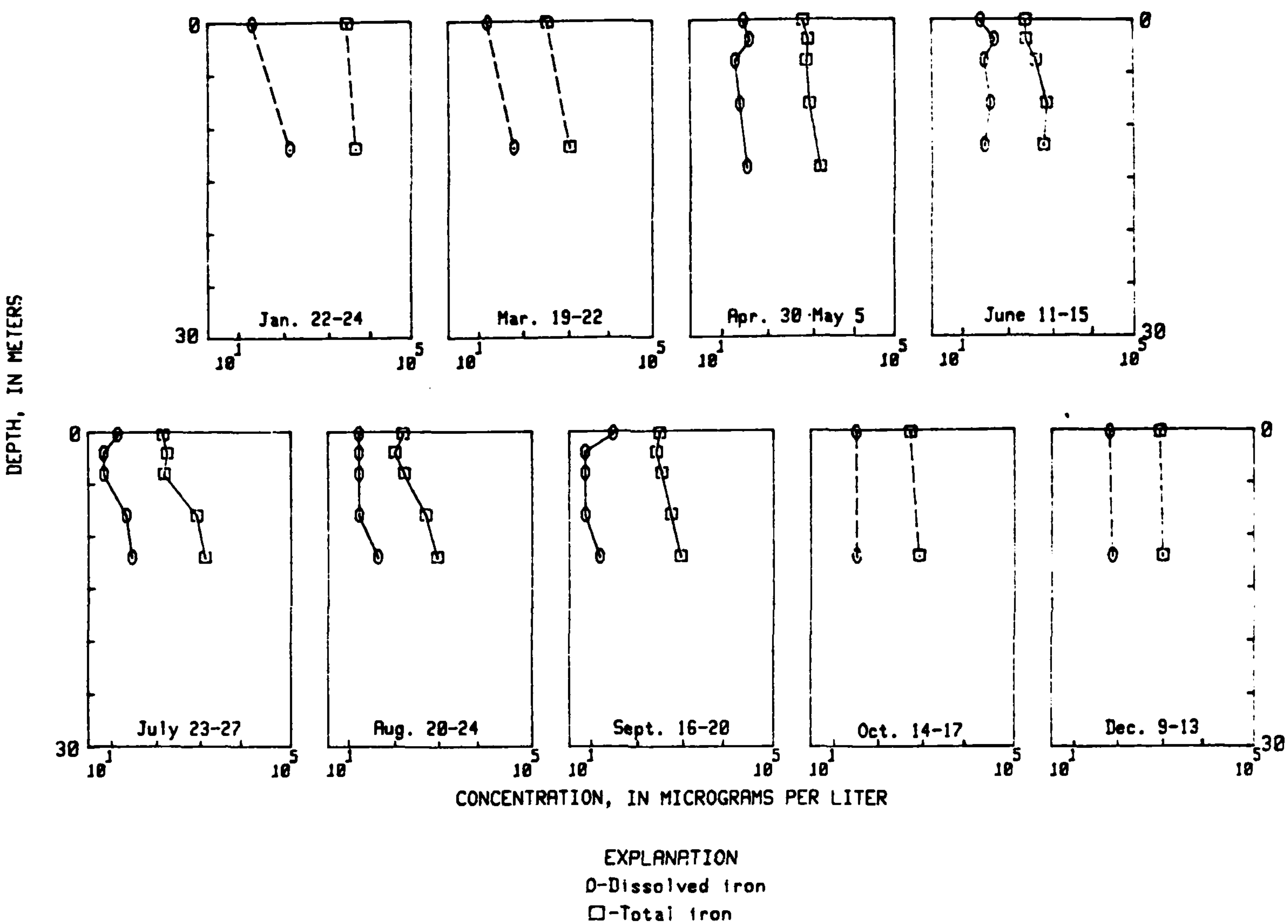
O-Dissolved iron

□-Total iron

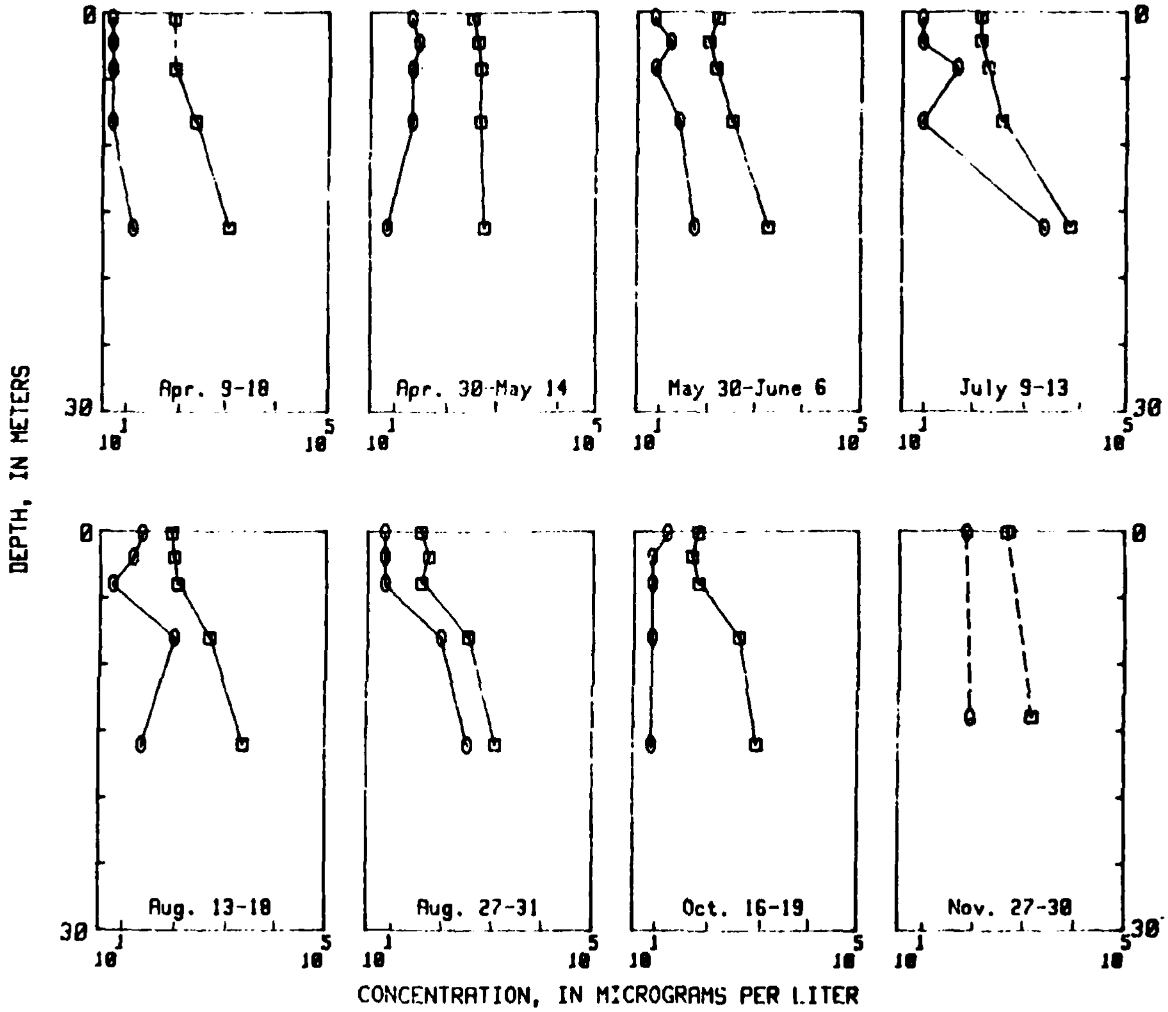
CH-10 (02338710) Chattahoochee River at State Highway 219, near LaGrange, Ga., 1979



CH-07 (02338720) Chattahoochee River (city of LaGrange intake) near LaGrange, Ga., 1978



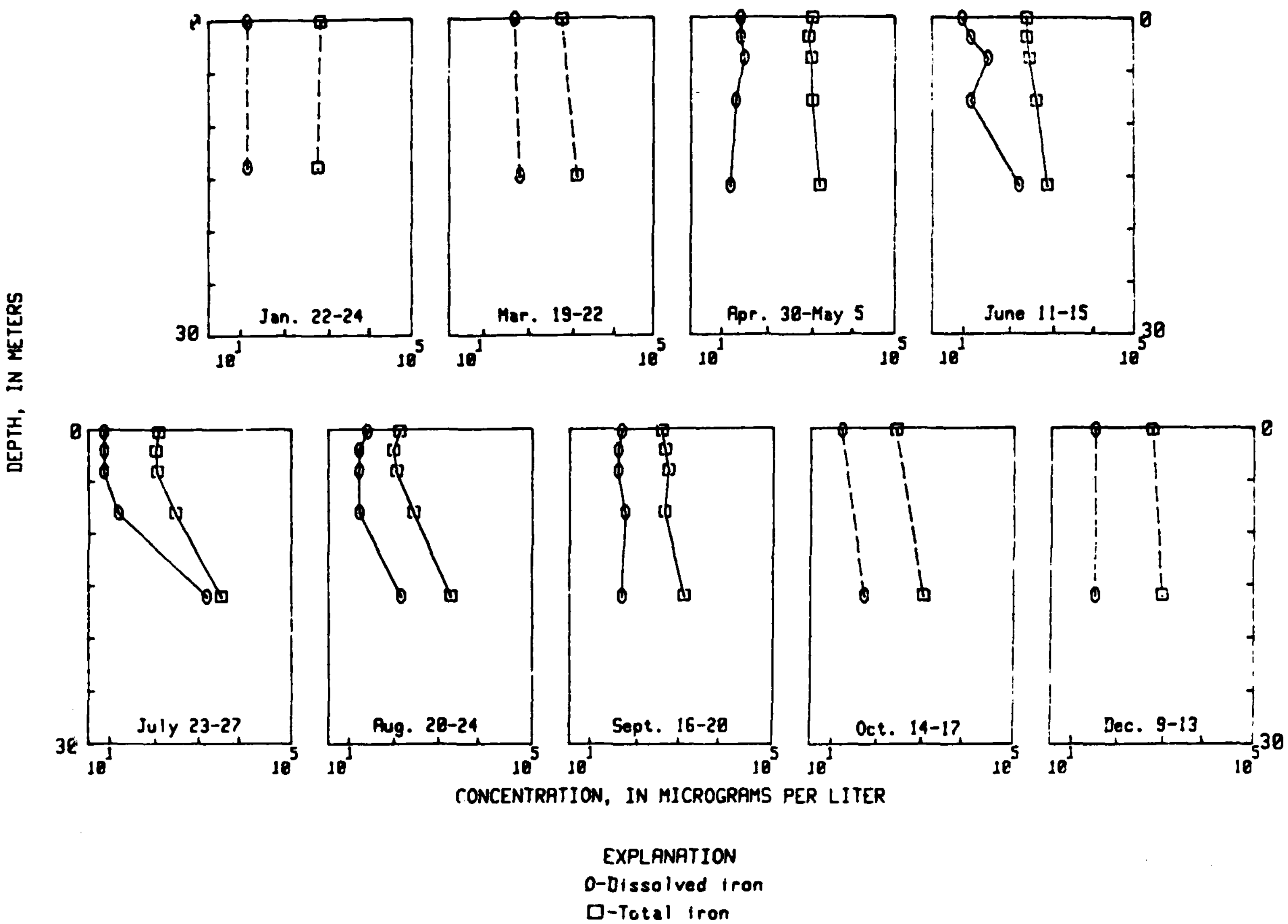
CH-07 (02338720) Chattahoochee River (city of LaGrange intake) near LaGrange, Ga., 1979



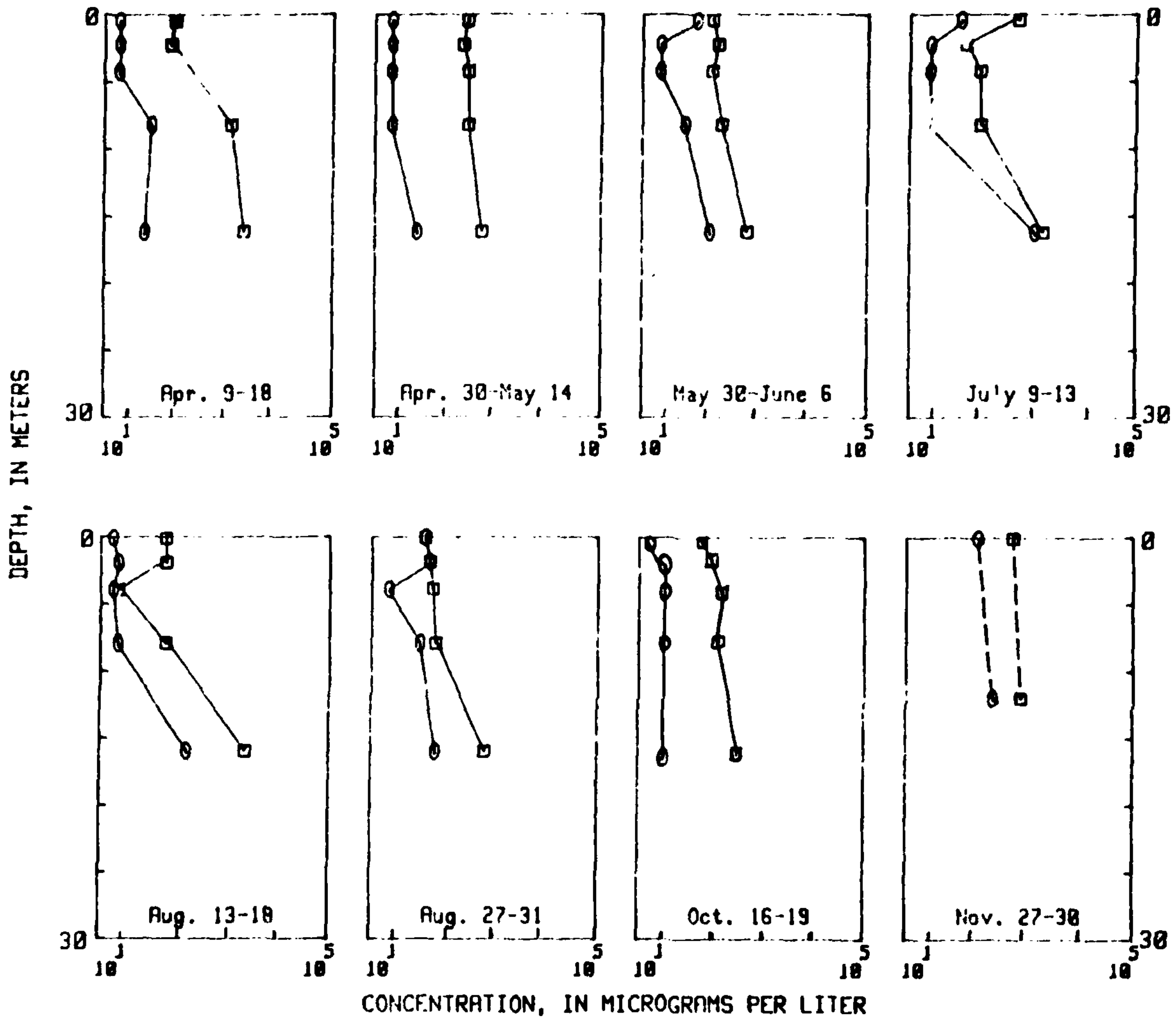
EXPLANATION

O-Dissolved iron
□-Total iron

CH-05A (02339190) Chattahoochee River at State Highway 701, near Abbottsford, Ga., 1978



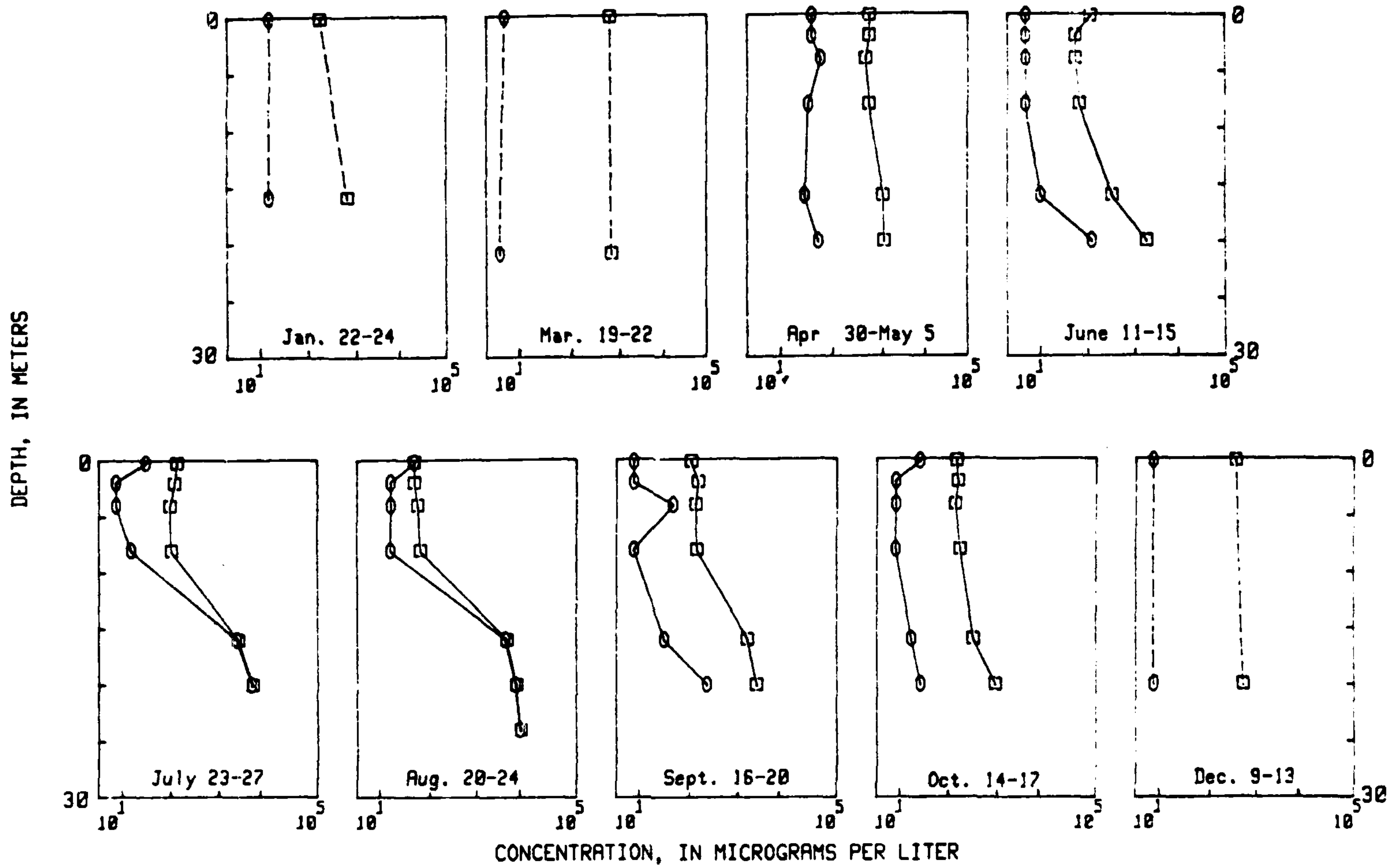
CH-05A (02339190) Chattahoochee River at State Highway 701, near Abbottsford, Ga., 1979



EXPLANATION

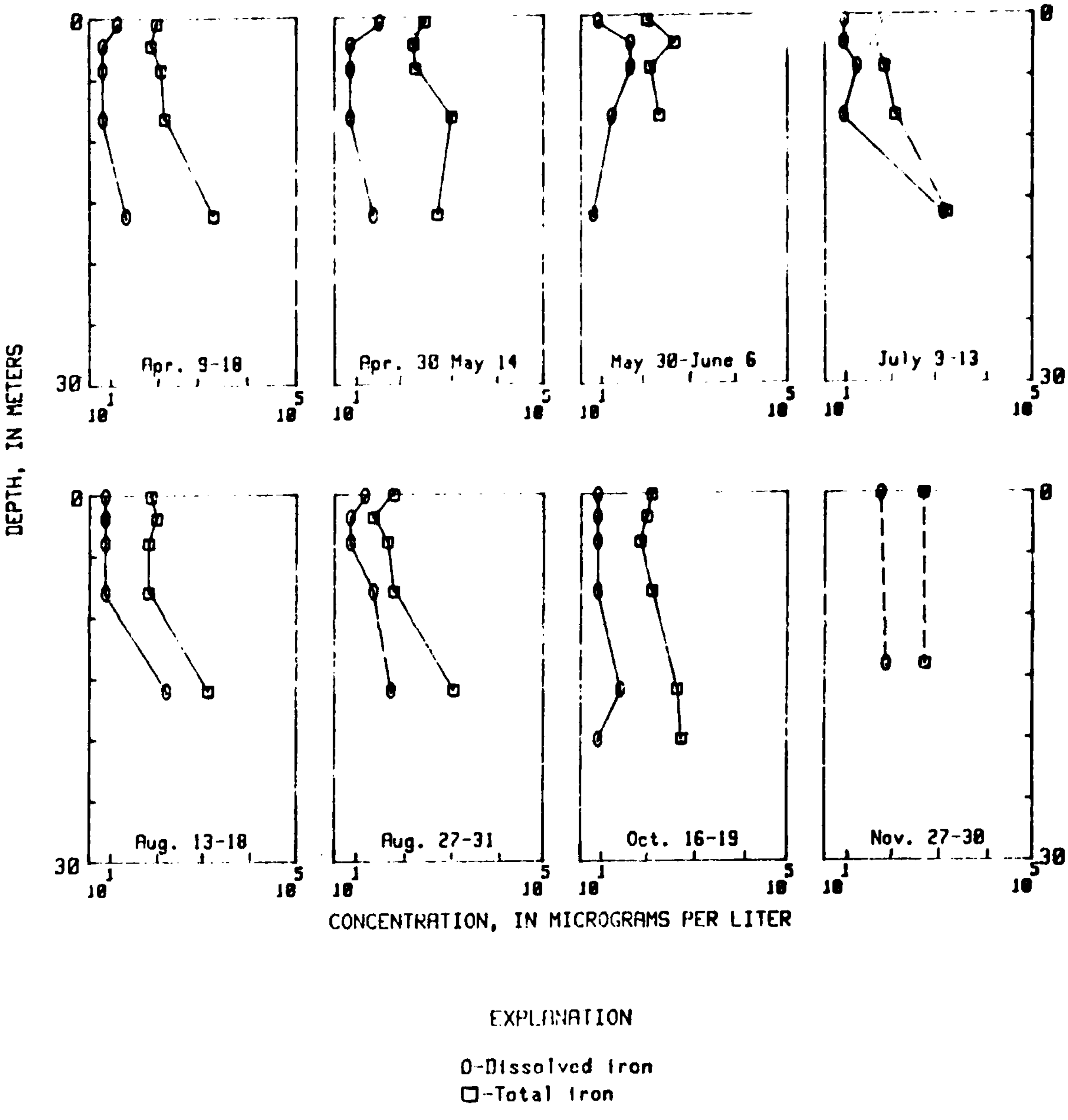
O-Dissolved iron
□-Total iron

CH-03A (02339382) Chattahoochee River above coffer dam, above West Point Dam, 1978

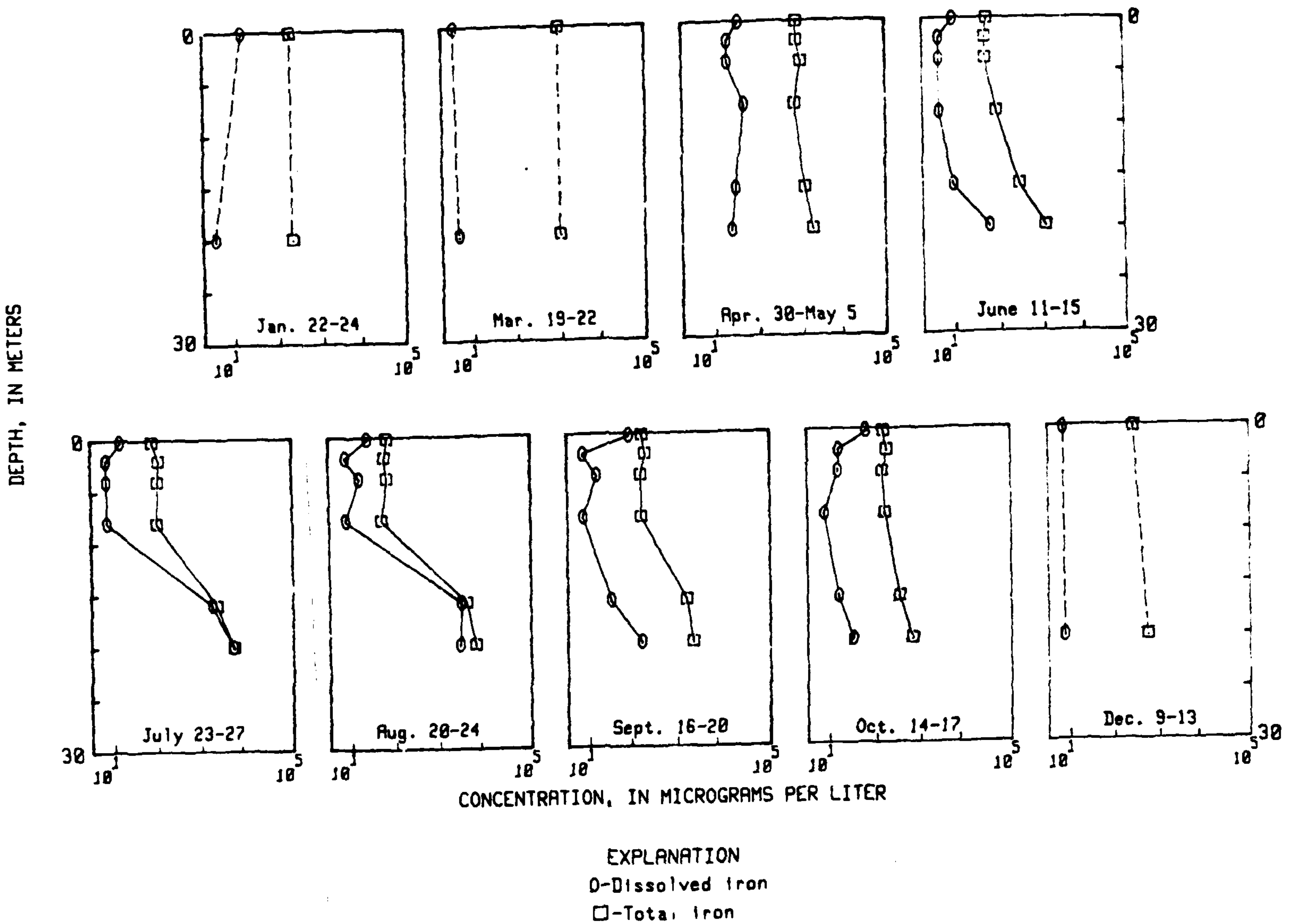


EXPLANATION
O-Dissolved iron
□-Total iron

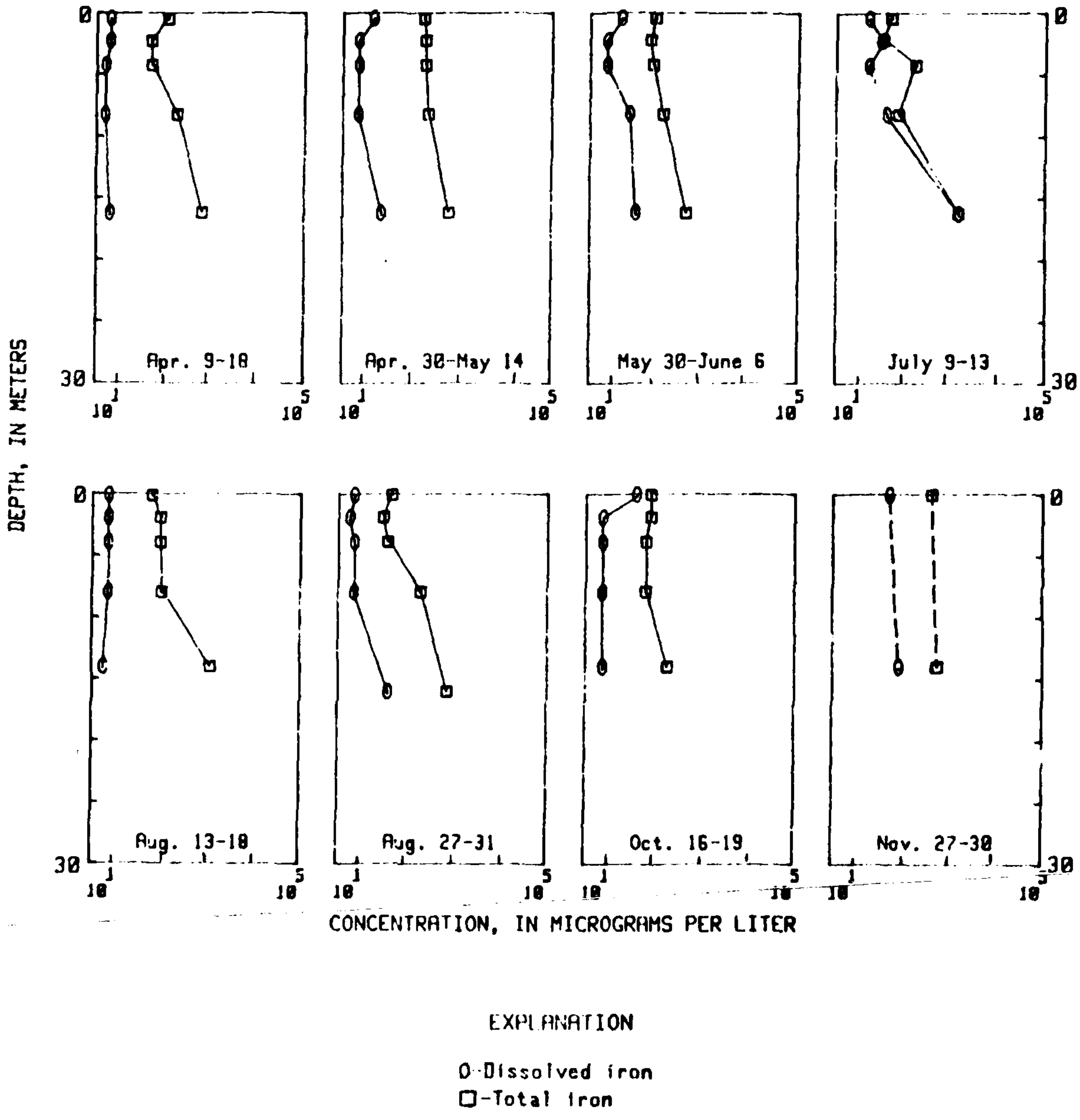
CH-03A (02339382) Chattahoochee River above coffer dam, above West Point Dam, 1979



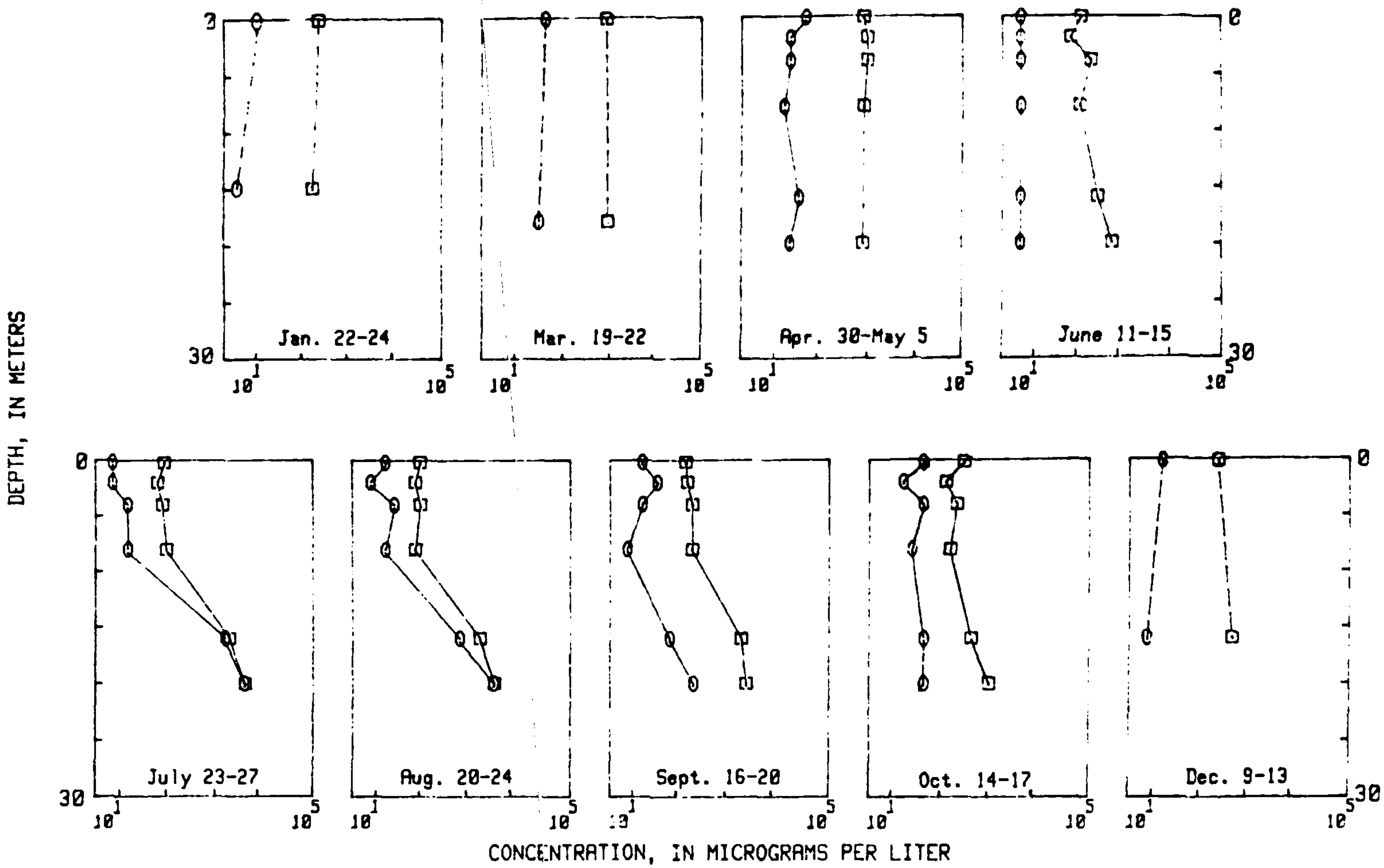
CH-03B (02339387) Chattahoochee River east of coffer dam, above West Point Dam, 1978



CH-03B (02339387) Chattahoochee River east of coffer dam, above West Point Dam, 1979

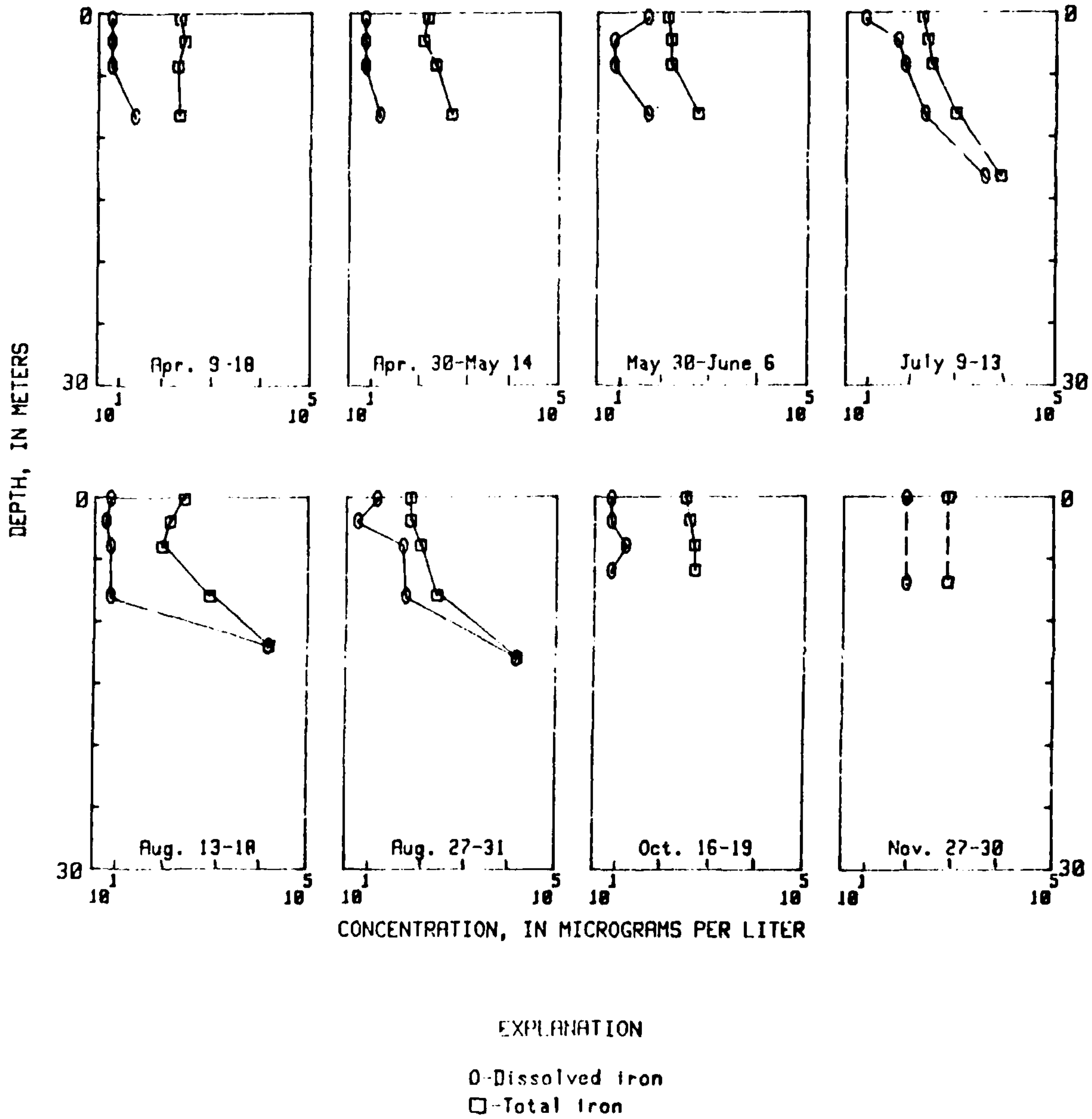


CH-03C (02339388) Chattahoochee River below coffer dam, above West Point Dam, 1978

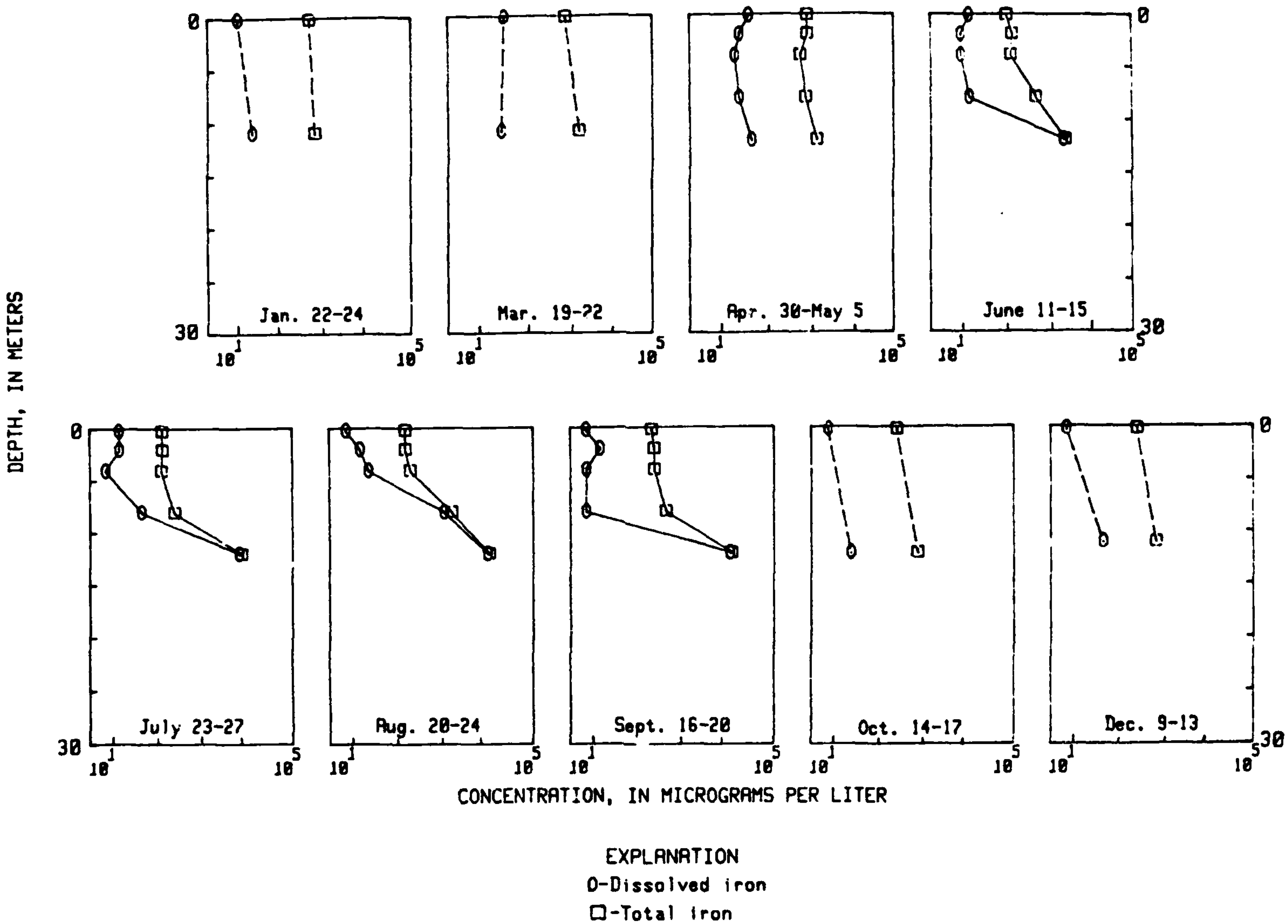


EXPLANATION
O-Dissolved iron
□-Total iron

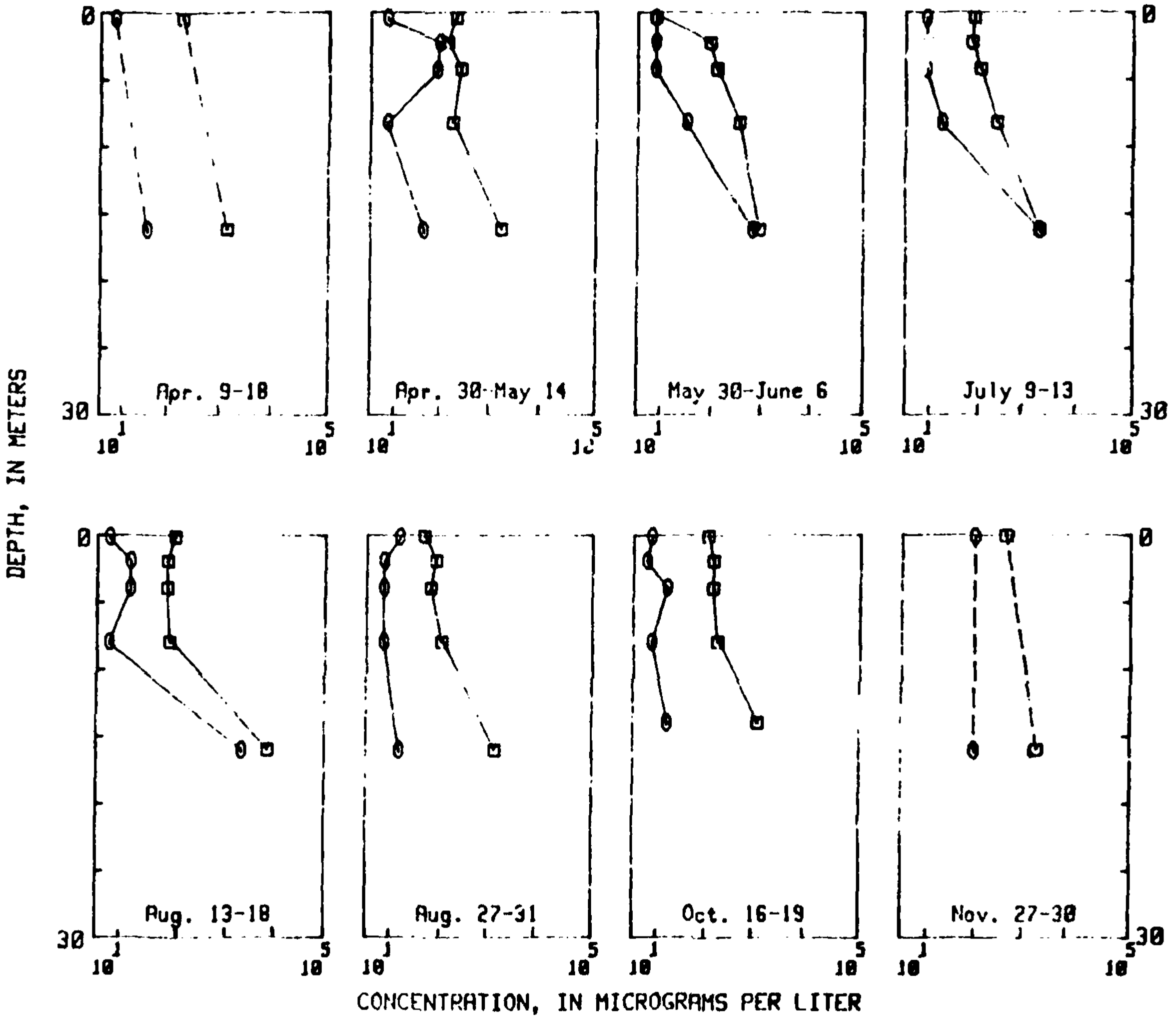
CH-03C (02339388) Chattahoochee River below coffer dam, above West Point Dam, 1979



CH 08 (02339020) Chattahoochee River at Cameron Mill Road, near LaGrange, Ga., 1978



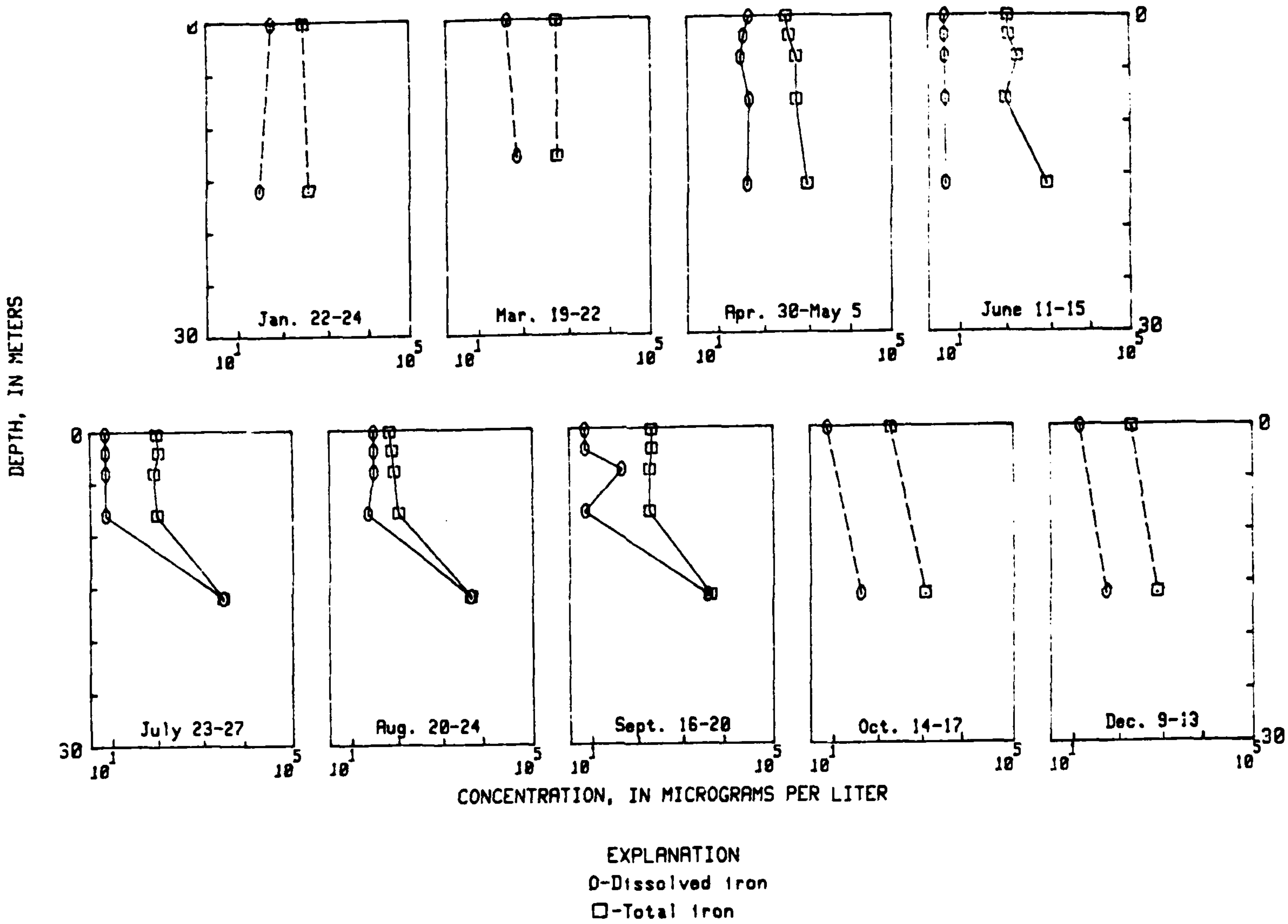
CH-08 (02339020) Chattahoochee River at Cameron Mill Road, near LaGrange, Ga., 1979



EXPLANATION

O-Dissolved iron
□-Total iron

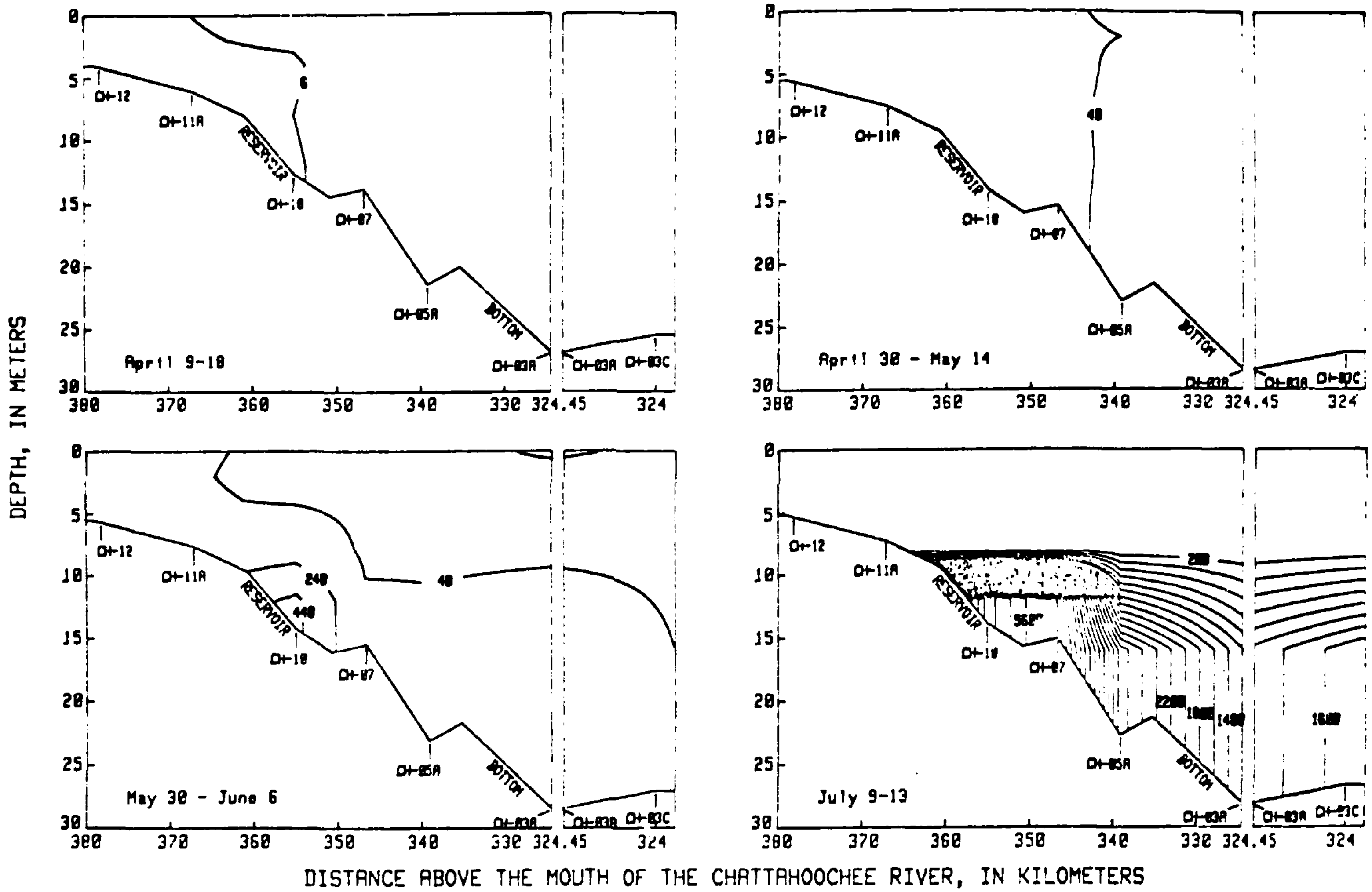
CH-13 (02339362) Wehadkee Creek at State Highway 238, near Abbottsford, Ga., 1978



CH-13 (02339362) Wehadkee Creek at State Highway 238, near Abbottsford, Ga., 1979

APPENDIX C-12

Isopleths showing longitudinal variations in iron concentrations in West Point Reservoir, April 1978-December 1979

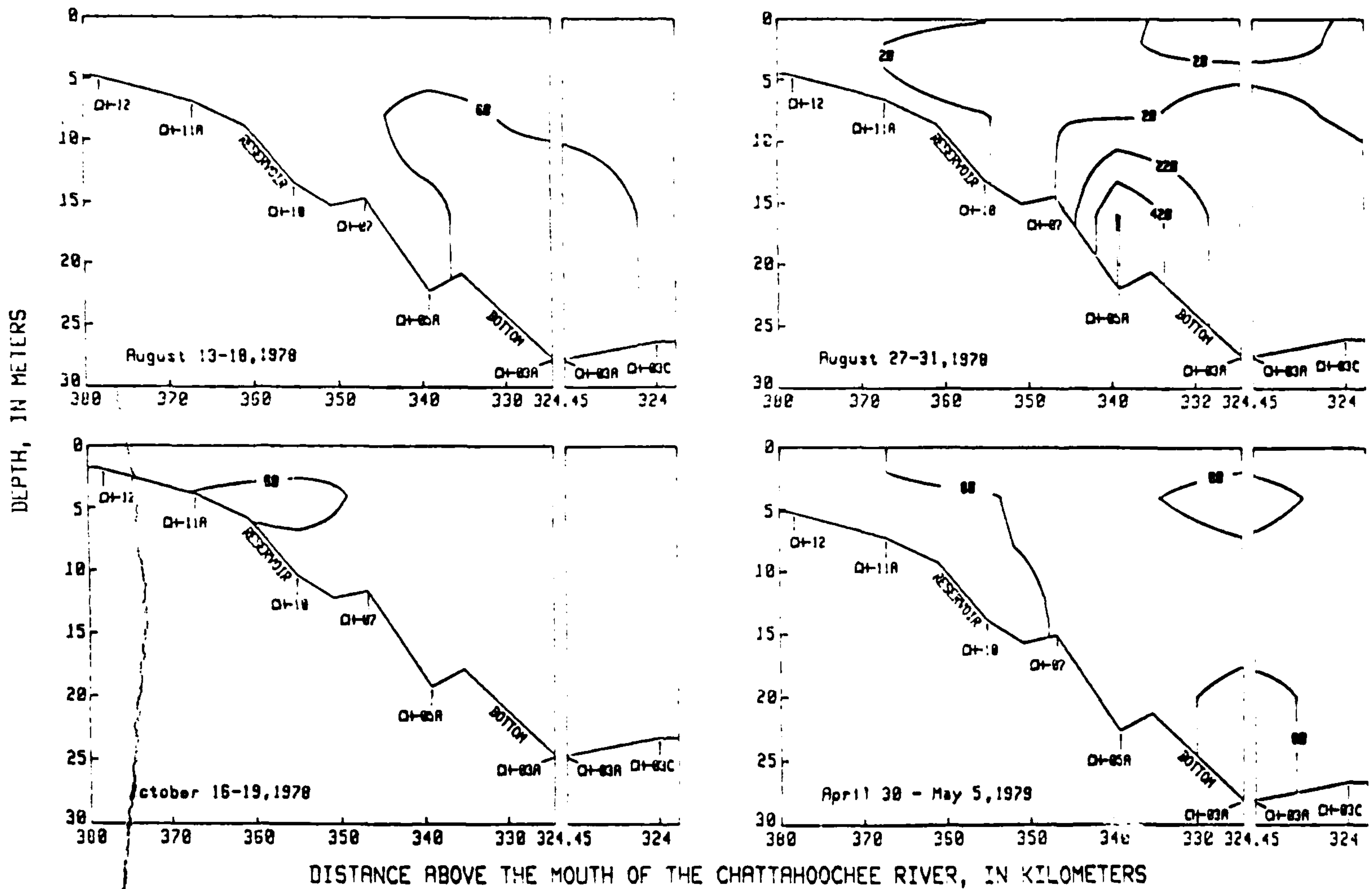


EXPLANATION

-200- LINE OF EQUAL DISSOLVED IRON CONCENTRATION - Interval 200 micrograms per liter

CH-05A WATER SAMPLING STATION

Dissolved iron concentration, April-July 1978

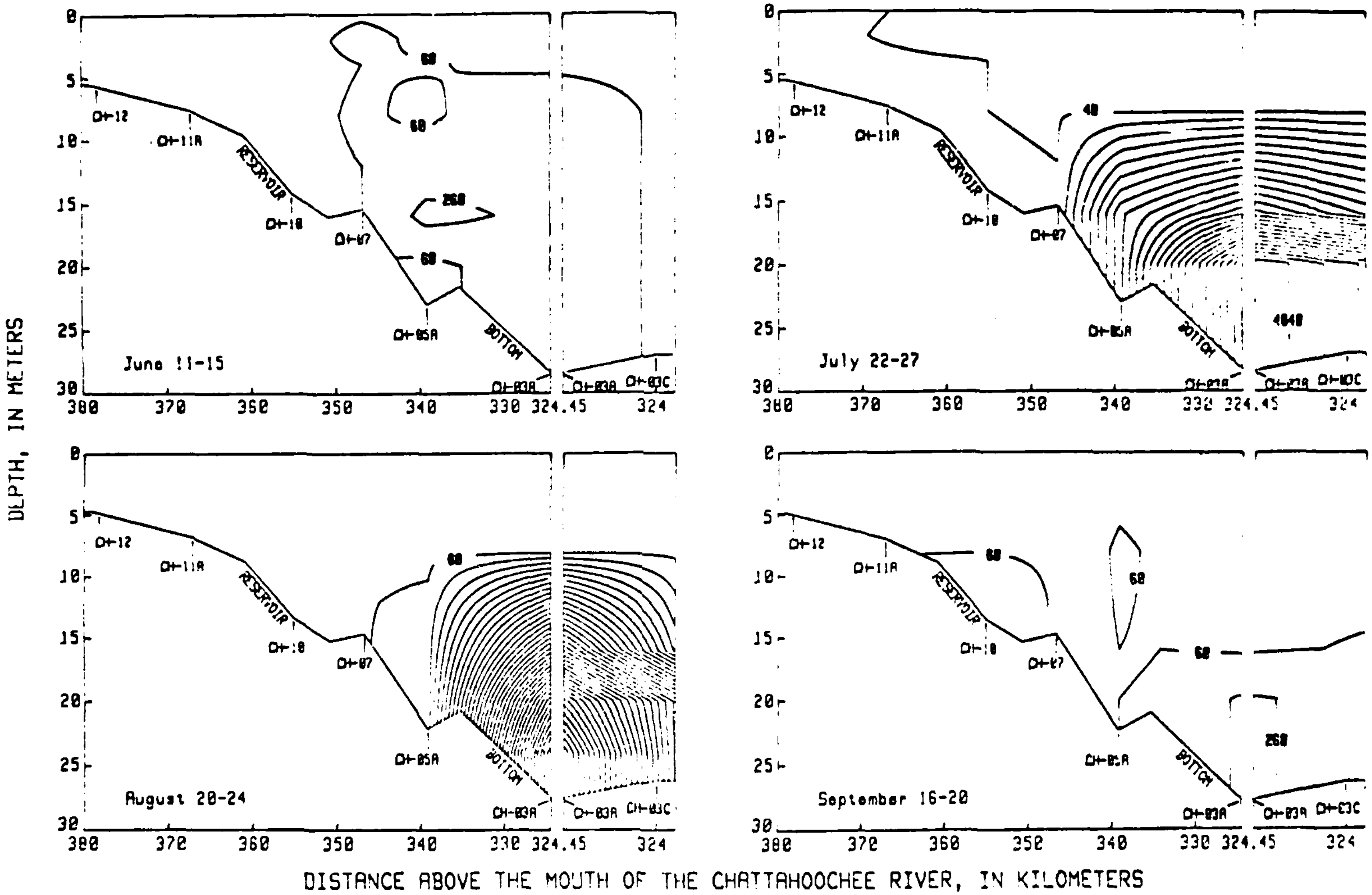


EXPLANATION

-220- LINE OF EQUAL DISSOLVED IRON CONCENTRATION - Interval 200 micrograms per liter

CH-05A WATER SAMPLING STATION

Dissolved iron concentration, August 1978 - May 1979

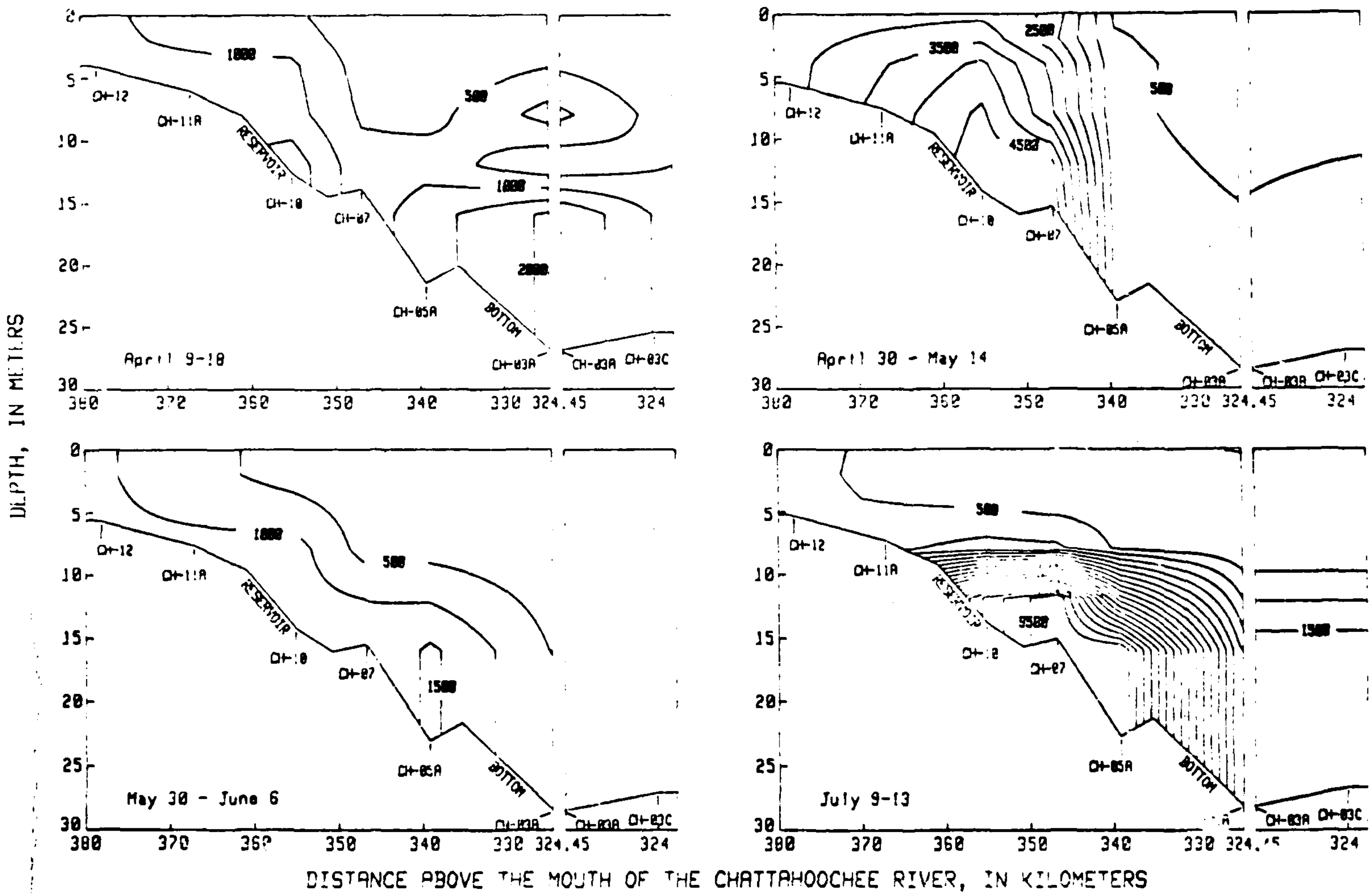


EXPLANATION

-260- LINE OF EQUAL DISSOLVED IRON CONCENTRATION - Interval 200 micrograms per liter

CH-05A WATER SAMPLING STATION

Dissolved iron concentration, June-September 1979

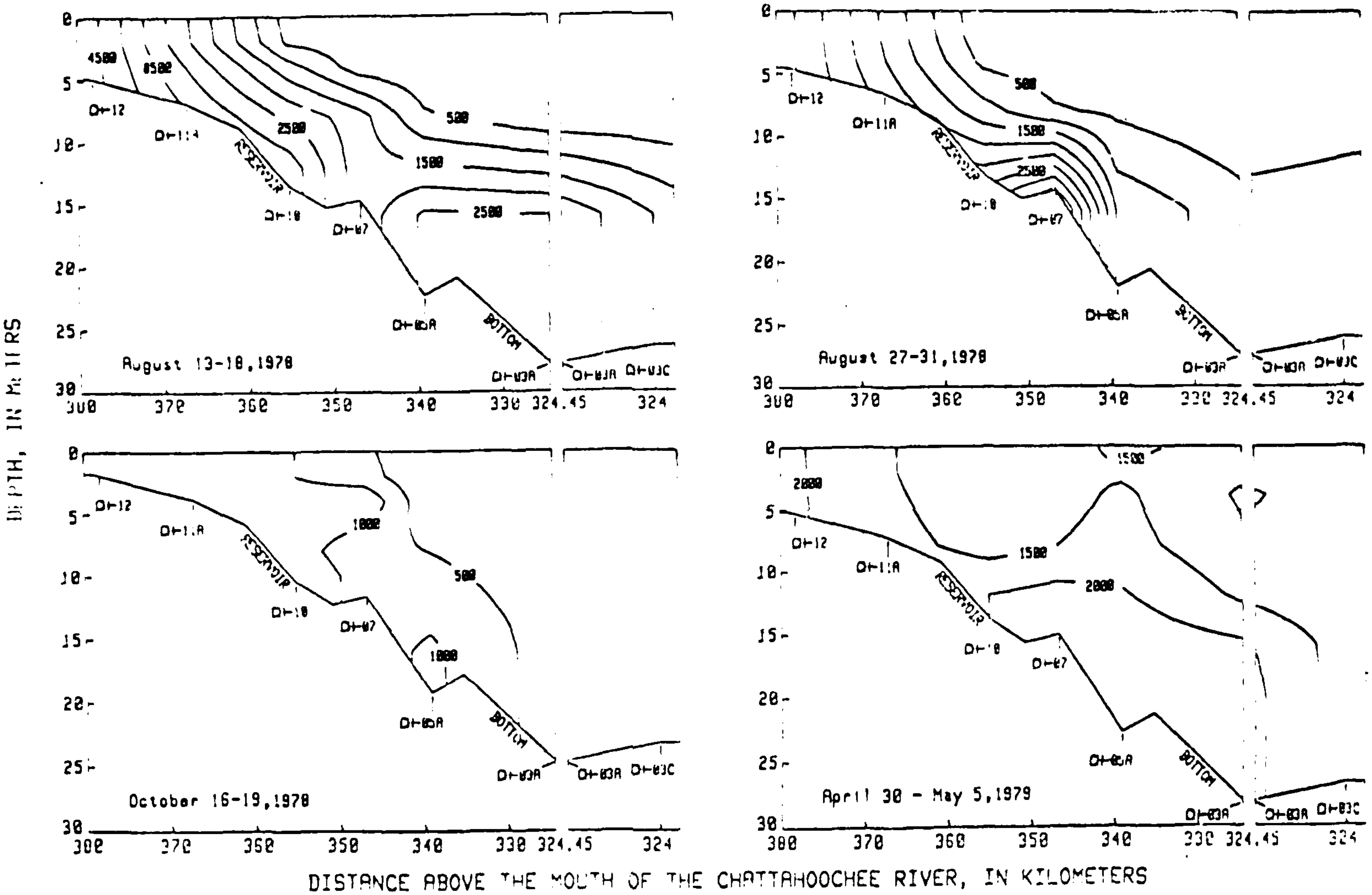


EXPLANATION

-1000- LINE OF EQUAL TOTAL IRON CONCENTRATION - Interval 500 micrograms per liter

CH-05A WATER SAMPLING STATION

Total iron concentration, April-July 1978

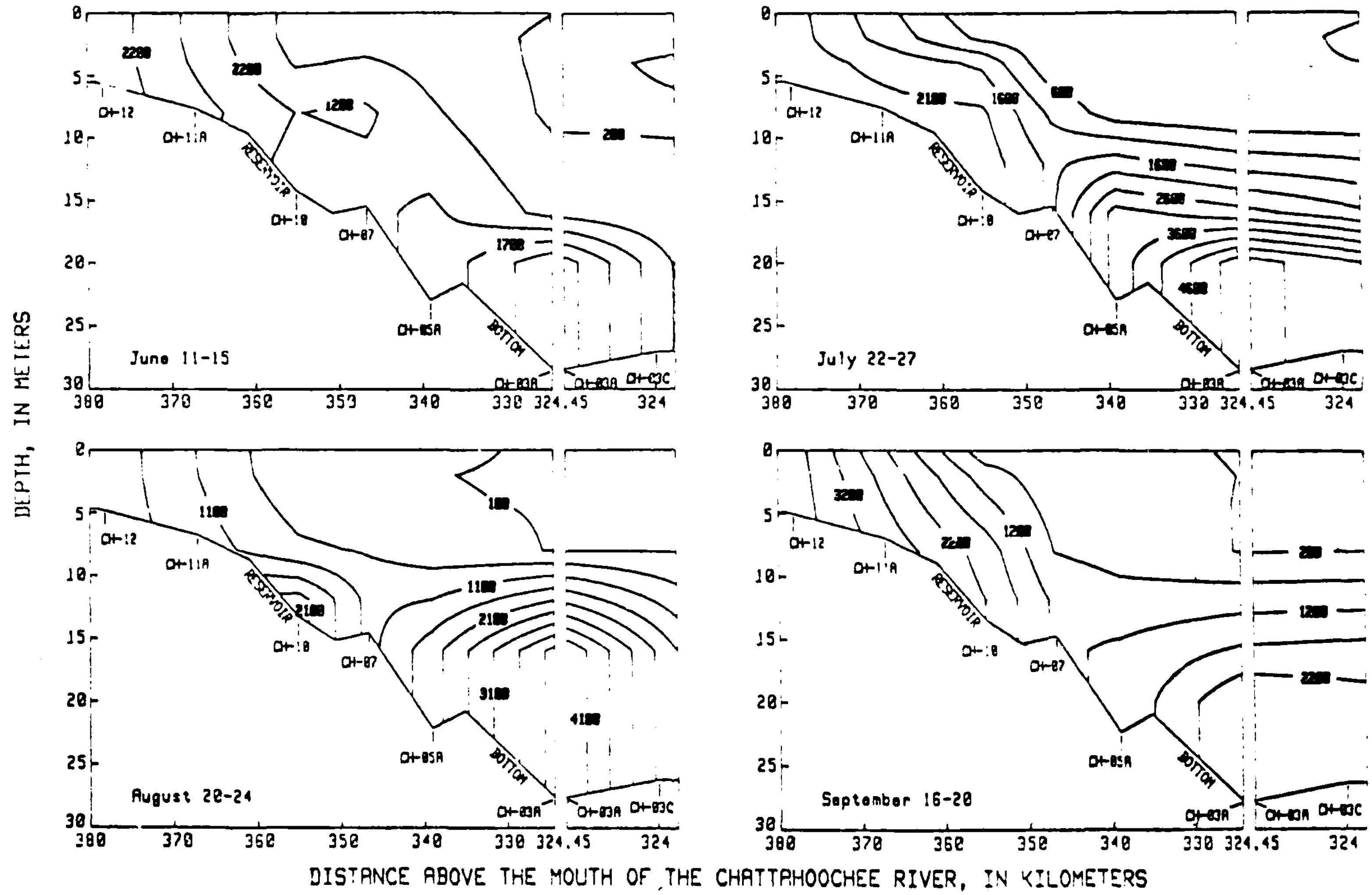


EXPLANATION

-1000- LINE OF EQUAL TOTAL IRON CONCENTRATION - Interval 500 micrograms per liter

CH-05A WATER SAMPLING STATION

Total iron concentration, August 1978 - May 1979



EXPLANATION

-2200- LINE OF EQUAL TOTAL IRON CONCENTRATION - Interval 500 micrograms per liter

CH-05A WATER SAMPLING STATION

Total iron concentration, June-September 1979

APPENDIX D

Biological data

APPENDIX D-1

Summary of biological data collected at stations in West Point Reservoir, 1978 and 1979

[Euphotic depth; Secchi disc visibility; seston, dry weight; seston, ash weight; seston, volatile weight; phytoplankton, standing stock; chlorophyll a; chlorophyll b; zooplankton, standing stock; adenosine triphosphate; algal growth potential]

CH-12 (02338500), Chattahoochee River at U.S. Highway 27, at Franklin, Ga., 1978 and 1979

[#, No euphotic depth determined at this station. All sampling restricted to 1 m below the surface. +, not required for this data-collection trip; D, deleted because of questionable results; *, present in insufficient densities to establish an accurate count]

Date	Euphotic depth (m)	Secchi-disc visibility (m)	Seston: Dry weight (mg/L)	Seston: Ash weight (mg/L)	Seston: Volatile weight (mg/L)	Phytoplankton: Standing stock (cells/mL)	Phytoplankton: Chlorophyll _a_ (ug/L)	Phytoplankton: Chlorophyll _b_ (ug/L)	Zooplankton standing stock (organisms/m^3)	ATP (ug/L)	AGP (mg/L)
1978											
April 18	#	+	20.0	15.0	5.0	510	3.06	<0.01	D	0.44	39.0
May 8	#	+	30.0	20.0	10.0	1,240	1.50	<.01	*	.21	27.0
June 6	#	+	14.0	12.0	2.0	5,840	3.51	<.01	1,000	D	46.7
July 13	#	+	8.0	D	D	2,430	4.81	<.01	1,000	.10	48.0
August 17	#	+	60.0	50.0	10.0	3,810	2.17	<.01	*	.14	40.0
August 31	#	+	60.0	50.0	10.0	720	1.12	<.01	*	.24	28.0
October 19	#	+	+	+	+	+	2.00	<.01	+	+	33.0
1979											
March 22	#	0.65	+	+	+	+	2.72	<0.01	+	+	+
May 5	#	.30	51.3	41.7	9.6	15,120	D	<.01	7,850	.11	+
June 13	#	.40	54.5	45.5	9.0	14,000	D	<.01	3,120	.30	+
July 26	#	.40	46.0	35.5	10.5	10,160	D	<.01	1,530	.70	+
August 23	#	.45	67.0	57.5	9.5	11,530	2.02	<.01	1,190	1.10	+
September 20	#	.20	99.0	86.5	12.5	14,720	D	<.01	5,690	+	+
October 17	#	+	57.0	48.5	8.5	22,280	D	<.01	7,100	+	+
December 13	#	+	28.0	22.0	6.0	9,930	D	<.01	1,010	.20	+

CH-11A (02338570), Chattahoochee River above New River, near Corinth, Ga., 1979

[Euphotic zone: that column of water absorbing ninety-nine percent of the incident surface light. All sampling, with the exception of zooplankton, restricted to the euphotic zone. Zooplankton were analyzed from samples composited over the entire water column. +, not required for this data-collection trip; D, deleted because of questionable results]

Date	Euphotic depth (m)	Secchi-disc visibility (m)	Seston: Dry weight (mg/L)	Seston: Ash weight (mg/L)	Seston: Volatile weight (mg/L)	Phytoplankton: Standing stock (cells/mL)	Phytoplankton: Chlorophyll *a* (ug/L)	Phytoplankton: Chlorophyll *b* (ug/L)	Zooplankton standing stock (organisms/m^3)	ATP (ug/L)	AGP (mg/L)
1979											
March 21	2.0	0.65	+	+	+	+	3.54	<0.01	+	+	+
May 4	2.0	.65	17.3	13.7	3.6	14,060	D	<.01	2,080	0.20	+
June 13	1.5	.45	18.0	15.3	2.7	5,400	6.61	<.01	6,410	.40	+
July 26	1.0	.30	24.5	19.0	5.5	11,830	9.36	<.01	6,560	.50	+
August 23	2.0	.40	28.5	22.5	6.0	18,800	6.43	<.01	1,310	1.00	+
September 20	1.0	.30	39.5	35.0	4.5	9,620	D	<.01	8,800	+	+
October 17	1.5	.50	20.3	16.7	3.6	2,030	D	<.01	6,600	+	+
December 12	2.0	.60	19.6	16.8	2.8	3,880	D	<.01	1,360	.20	+

CH-10 (02338710), Chattahoochee River at State Highway 219, near LaGrange, Ga., 1978 and 1979

[Euphotic zone: that column of water absorbing ninety-nine percent of the incident surface light.All sampling, with the exception of zooplankton, restricted to the euphotic zone. Zooplankton were analyzed from samples composited over the entire water column. x, malfunctioning photometer; +, not required for this data-collection trip; D, deleted because of questionable results]

			Seston			Phytoplankton					
Date	Euphotic depth (m)	Secchi-disc visibility (m)	Dry weight (mg/L)	Ash weight (mg/L)	Volatile weight (mg/L)	Standing stock (cells/mL)	Chlorophyll *a* (ug/L)	Chlorophyll *b* (ug/L)	Zoo-plankton standing stock (organ-isms/m3)	ATP (ug/L)	AGP (mg/L)
1978											
April 17	1.5	0.60	13.0	7.0	6.0	151,700	34.7	<0.01	20,000	0.45	4.1
May 2	1.0	.20	50.0	27.0	23.0	5,540	2.99	<.01	1,000	.18	5.2
June 5	2.5	.85	4.0	<.1	4.0	172,250	29.0	3.43	31,000	D	1.90
July 12	3.0	1.00	3.0	<.1	3.0	146,420	24.0	<.01	71,000	2.21	1.00
August 16	2.0	.70	13.0	3.0	10.0	458,600	27.1	2.85	26,000	2.34	D
August 29	3.0	1.10	D	D	D	164,280	28.0	1.91	58,000	1.01	D
October 17	2.0	.50	+	+	+	+	5.74	<.01	+	+	D
1979											
March 21	2.5	0.70	+	+	+	+	24.9	0.79	+	+	+
May 4	2.0	.55	13.0	10.3	2.7	1,830	4.52	<.01	7,170	.45	+
June 15	2.5	.70	13.7	10.0	3.7	11,350	8.88	<.01	69,640	.90	+
July 27	2.5	.80	11.0	3.5	7.5	295,480	26.8	<.01	77,840	4.4	+
August 24	3.0	.80	21.5	15.5	6.0	220,080	9.98	<.01	98,170	2.0	+
September 20	x	.80	22.0	18.3	1.7	40,870	3.80	<.01	21,490	+	+
October 17	1.5	.70	9.3	6.7	2.6	26,850	5.25	<.01	5,560	+	+
December 12	2.0	.60	13.3	9.7	3.6	9,510	4.95	<.01	1,160	.70	+

CH-07 (02338720), Chattahoochee River (city of LaGrange intake) near LaGrange, Ga., 1978 and 1979

[Euphotic zone: that column of water absorbing ninety-nine percent of the incident surface light. All sampling, with the exception of zooplankton, restricted to the euphotic zone. Zooplankton were analyzed from samples composited over the entire water column. x, malfunctioning photometer; +, not required for this data-collection trip; D, deleted because of questionable results]

			Seston			Phytoplankton					
Date	Euphotic depth (m)	Secchi-disc visibility (m)	Dry weight (mg/L)	Ash weight (mg/L)	Volatile weight (mg/L)	Standing stock (cells/mL)	Chlorophyll _a_ (ug/L)	Chlorophyll _b_ (ug/L)	Zoo-plankton standing stock (organisms/m^3)	ATP (ug/L)	AGP (mg/L)
1978											
April 12	2.5	1.00	10.5	3.0	7.0	62,500	9.67	<0.01	29,000	2.67	D
May 4	1.0	.20	27.0	13.0	14.0	22,190	8.55	<.01	2,000	.44	D
June 1	3.0	1.40	13.0	3.0	10.0	666,280	34.3	<.01	36,000	1.35	1.50
July 11	4.0	1.10	10.0	2.0	8.0	146,060	34.0	2.76	65,000	2.10	1.30
August 17	2.5	1.60	6.0	3.0	3.0	294,290	32.3	<.01	43,000	D	D
August 29	3.0	1.00	10.0	3.0	7.0	183,240	23.3	<.01	52,000	D	D
1979											
March 21	2.0	0.75	+	+	+	+	D	D	+	+	+
May 5	2.0	.45	10.3	6.7	3.6	12,780	3.46	<.01	17,200	1.10	+
June 15	3.0	.70	7.0	3.7	3.3	39,310	9.26	<.01	190,990	1.90	+
July 27	3.0	1.00	6.3	2.7	3.6	393,690	20.0	<.01	126,950	1.40	+
August 24	4.0	1.00	8.7	2.3	6.4	257,190	6.94	<.01	133,980	3.10	+
September 20	x	.90	6.0	4.8	1.2	56,450	5.79	<.01	47,860	+	+
October 17	2.2	.85	16.7	9.0	7.7	11,050	3.86	<.01	64,680	+	+
December 11	1.5	.57	11.7	6.7	5.0	8,450	6.16	<.01	1,270	.50	+

CH-05A (02339190), Chattahoochee River at State Highway 701, near Abbottsford, Ga., 1978 and 1979

[Euphotic zone: that column of water absorbing ninety-nine percent of the incident surface light. All sampling, with the exception of zooplankton, restricted to the euphotic zone. Zooplankton were analyzed from samples composited over the entire water column. x, malfunctioning photometer; +, not required for this data-collection trip; D, deleted because of questionable results]

Date	Euphotic depth (m)	Secchi-disc visibility (m)	Seston: Dry weight (mg/l)	Seston: Ash weight (mg/L)	Seston: Volatile weight (mg/L)	Phytoplankton: Standing stock (cells/mL)	Phytoplankton: Chlorophyll a (ug/L)	Phytoplankton: Chlorophyll b (ug/L)	Zooplankton standing stock (organisms/m^3)	ATP (ug/L)	AGP (mg/L)
1978											
April 12	3.6	1.30	8.0	4.0	4.0	18,810	D	D	36,000	1.94	4.00
May 3	2.0	.80	13.0	D	D	53,300	18.7	<0.01	23,000	.06	3.40
June 1	4.0	1.30	6.0	2.0	4.0	126,280	7.85	<.01	45,000	1.60	1.42
July 11	4.0	1.30	10.0	2.0	8.0	129,910	29.5	<.01	6,000	.33	1.30
August 15	3.0	1.00	8.0	<.1	8.0	276,110	31.5	<.01	102,000	D	1.80
August 30	3.0	1.00	8.0	4.0	4.0	164,260	26.8	<.01	39,000	D	1.00
October 16	4.0	1.00	+	+	+	+	8.64	<.01	+	+	.60
1979											
March 20	1.5	0.60	+	+	+	+	19.4	0.94	+	+	+
May 4	1.5	.40	11.3	6.7	4.6	22,700	17.7	<.01	13,580	1.39	+
June 15	3.5	1.00	7.7	4.0	3.7	114,170	9.43	<.01	283,740	1.40	+
July 27	4.0	1.20	4.0	.7	3.3	216,900	15.8	<.01	80,550	1.20	+
August 24	4.0	1.10	6.0	4.0	2.0	170,110	8.20	<.01	81,340	.20	+
September 20	x	-	6.2	4.8	1.4	65,460	8.60	<.01	64,410	+	+
October 17	3.0	1.10	6.8	3.5	3.3	38,570	14.1	<.01	176,750	+	+
December 13	2.5	.80	8.2	4.8	3.4	7,790	5.70	<.01	3,880	.60	+

CH-03C (02339388), Chattahoochee River below coffer dam, above West Point Dam, 1978 and 1979

[Euphotic zone: that column of water absorbing ninety-nine percent of the incident surface light. All sampling, with the exception of zooplankton, restricted to the euphotic zone. Zooplankton were analyzed from samples composited over the entire water column. x, malfunctioning photometer; +, not required for this data-collection trip; D, deleted because of questionable results]

Date	Euphotic depth (m)	Secchi-disc visibility (m)	Seston: Dry weight (mg/L)	Seston: Ash weight (mg/L)	Seston: Volatile weight (mg/L)	Phytoplankton: Standing stock (cells/mL)	Phytoplankton: Chlorophyll a (ug/L)	Phytoplankton: Chlorophyll b (ug/L)	Zooplankton standing stock (organisms/m^3)	ATP (ug/L)	AGP (mg/L)
1978											
April 10	2.0	1.00	2.0	1.0	1.0	59,060	19.8	<0.01	4,000	3.12	1.75
May 14	3.0	1.25	7.0	<.1	7.0	5,870	12.5	<.01	21,000	.22	2.40
May 31	5.0	1.90	8.0	2.0	6.0	123,530	9.22	<.01	D	1.09	.66
July 10	6.0	1.70	7.0	3.0	4.0	76,290	13.7	2.93	1,000	.51	1.30
August 14	5.0	1.70	8.0	2.0	6.0	50,210	12.2	<.01	19,000	D	.60
August 30	4.0	1.10	6.0	.0	6.0	84,400	21.3	<.01	14,000	D	.40
October 16	3.0	+	+	+	+	+	10.4	<.01	+	+	.40
1979											
March 20	1.5	0.40	+	+	+	+	35.0	<0.01	+	+	+
May 4	2.0	.50	10.3	7.7	2.6	20,720	3.80	<.01	45,930	1.66	+
June 15	4.0	1.50	4.5	1.0	3.5	68,840	8.75	<.01	62,810	1.20	+
July 27	5.0	1.40	6.7	4.0	2.7	41,490	7.70	<.01	64,170	.30	+
August 24	5.5	1.70	4.7	1.3	3.4	117,620	7.93	<.01	33,760	.10	+
September 20	x	-	2.0	2.0	<.1	144,410	12.0	<.01	38,810	+	+
October 17	5.0	1.50	4.2	3.8	.4	38,550	7.92	<.01	149,580	+	+
December 10	3.0	1.00	3.8	.5	3.3	7,460	5.17	<.01	42,890	.60	+

APPENDIX D-2

Temporal variation in phytoplankton standing stock at stations in West Point Reservoir, 1978 and 1979

[Standing crop in cells per milliliter; *, present in insufficient densities to establish accurate count]

Taxa	Date / Time: 4/18/78 1100	5/8/78 1230	6/6/78 0800	7/13/78 1445	8/17/78 1415	8/31/78 0800
Bacillariophyta						
Achnanthes Bory	14	-	-	-	20	10
Asterionella Hassall	14	-	-	-	-	-
Cyclotella Brebisson	-	76	77	-	20	10
Cymbella Agardh	-	-	15	10	-	-
Eunotia Ehrenberg	-	-	-	-	10	-
Fragilaria Lyngbye	200	30	15	-	250	20
Gomphonema Hustedt	54	-	15	-	30	-
Melosira Kutzing	-	-	-	-	-	-
Meridion Agardth	14	-	-	-	-	-
Navicula Bory	54	15	15	30	10	30
Nitzschia Hassall	95	91	46	180	60	60
Rhizosolenia Brightwell emend Ehrenberg	-	-	15	-	-	-
Synedra Ehrenberg	27	15	-	-	-	20
Tabellaria Ehrenberg						
Chlorophyta						
Actinastrum Lagerheim	-	-	250	-	-	-
Ankistrodesmus Corda	-	30	250	-	-	-
Carteria Diesing	-	-	15	130	-	-
Characium A. Braun	-	-	-	10	-	-
Chlamydomonas Ehrenberg	-	460	460	20	30	-
Chlorogonium Ehrenberg	-	-	15	-	10	-
Chodatella Lemmermann	-	-	-	-	20	-
Closteriopsis Lemmermann	-	-	-	-	-	-
Coccomonas Stein	-	-	-	-	-	-
Coelastrum Nageli	-	-	250	-	80	-
Cosmarium Corda	-	-	-	10	10	-
Crucigenia Morren	-	61	120	40	-	-
Dichotomococcus Korshikov	-	-	-	-	-	-
Dictyosphaerium Nageli	-	15	110	-	-	-
Dysmorphococcus Takeda	-	-	-	-	-	-
Elakatothrix Wille	-	-	150	-	-	-
Euastrum Ehrenberg	-	-	-	-	-	-
Franceia Lemmermann	-	-	-	-	-	-
Gloeoactinium G. M. Smith	-	-	-	-	-	-
Gloeocystis Nageli	-	-	-	-	-	-
Golenkinia Chodat	-	-	-	-	-	-
Gonium Muller	-	-	250	80	-	-
Kirchneriella Schmidle	-	-	230	80	-	-
Micractinium Fresenius	-	-	-	-	-	-
Mougeotia Agardh	-	-	92	-	-	-
Oocystis Nageli	-	-	-	-	-	-
Pandorina Bory	-	-	-	-	-	-
Pediastrum Meyer	-	-	-	-	-	-
Pteromonas Seligo	-	-	-	-	-	-
Scenedesmus Meyen	27	-	320	750	70	20
Selenastrum Reinsch	-	-	120	50	-	-
Schroederia Lemmermann	-	-	31	320	10	210
Spermatozoopsis Korshikov	-	-	-	-	-	-
Sphaerocystis Chodat	-	-	-	-	-	-
Staurastrum Meyen	-	-	-	-	-	-

CH-12 (02338500) Chattahoochee River at U.S. Highway 27 at Franklin Ga., 1978 -- Continued

Taxa / Date / Time	4/18/78 1100	5/8/78 1230	6/6/78 0800	7/13/78 1445	8/17/78 1415	8/31/78 0800
Chlorophyta--Continued						
Tetraedron Kutzing	-	-	-	-	-	-
Tetrastrum Chodat	-	-	-	-	-	-
Treubaria Bernard	-	-	15	-	-	-
Westella de Wildermann	-	-	250	-	-	-
Wislouchiella Skvortzow	-	-	-	-	-	-
Volvox Linnaeus	-	110	-	-	-	-
Chrysophyta						
Centritractus Lemmermann	-	-	-	-	-	-
Chrysococcus Klebs	-	-	-	-	-	-
Chrysophaerella Lauterborn	-	-	-	-	-	-
Dinobryon Ehrenberg	-	-	-	-	-	-
Mallomonas Perty	-	-	-	-	-	-
Ochromonas Wysotski	-	-	-	-	-	-
Synura Ehrenberg	-	-	-	-	-	-
Cryphophyta						
Chroomonas Hansgirg	-	-	46	-	-	-
Cryptomonas Ehrenberg	-	110	92	-	-	-
Cyanophyta						
Agmenellum quadruplicatum (Meneghini) Brebisson	-	-	740	-	80	-
Agmenellum Brebisson	-	-	-	320	-	80
Anabaena Bory	-	91	-	40	-	-
Anacystis cyanea Drouet and Daily	-	-	1,700	-	-	-
A. incerta (Lemmermann) Drouet and Daily	-	-	77	-	-	-
Anacystis Meneghini	-	91	-	140	99	-
Aphanizomenon Morren	-	-	-	-	-	-
Coccochloris Sprengel	-	30	-	-	-	-
Hormogonales	-	-	-	-	-	250
Lyngbya Agardh	-	-	-	99	3,000	-
Oscillatoria Vaucher	-	-	61	30	-	-
Phormidium Kutzing	-	-	-	-	-	-
Raphidiopsis Fritsch and Rich	-	-	-	-	-	-
Euglenophyta						
Euglena Ehrenberg	14	-	-	50	-	-
Lepocynclis Perty	-	-	-	40	-	10
Tachelomonas Ehrenberg	-	15	-	-	-	-
Pyrrophyta						
Glenodinium Stein	-	-	-	-	-	-
Gymnodinium Kofoid and Swezy	-	-	-	-	-	-
Peridinium Ehrenberg	-	-	-	-	-	-
Total number of taxa observed	10	15	30	20	17	11
Total number of cells per milliliter	513	1,240	5,842	2,429	3,809	720

CH-12 (02338500) Chattahoochee River at U.S. Highway 27 at Franklin, Ga., 1979

Taxa / Date / Time	5/5/79 1200	6/13/79 1700	7/26/79 1500	8/23/79 1430	9/20/79 1130	10/17/79 1030	12/13/79 1630
Bacillariophyta							
Achnanthes lanceolata Breb. ex Kutz.	-	11	-	-	-	-	17
A. minutissima Kutz.	16	33	45	43	60	-	35
Asterionella formosa Hass.	21	-	-	-	-	8	105
Cocconeis diminuta Pant.	-	-	-	-	-	-	35
C. placentula Ehr.	3	-	-	21	-	-	-
C. placentula v. euglypta (Ehr.) CL.	-	-	-	-	-	-	-
Cyclotella atomus Hust.	-	22	-	21	3	25	52
C. glomerata Bach.	21	87	158	64	36	41	122
C. Meneghiniana Kutz.	-	-	-	-	-	-	17
C. stelligera CL. and Grun.	3	33	-	-	-	8	-
Cymbella ventricosa Kutz.	-	-	-	-	24	-	-
Eunotia curvata (Kutz.) Logerst	-	-	-	-	-	8	-
E. pectinalis (O.F. Mull.) Rabh.	-	-	-	21	-	-	-
Fragilaria bicapitata A. Mayer	-	-	-	-	-	-	-
F. brevistriata Grun.	-	-	-	-	-	8	-
F. crotonensis Kitton	-	-	-	-	-	-	-
F. intermedia Grun.	16	-	23	-	-	50	70
F. vaucheriae (Kutz.) Peters	-	-	-	43	-	8	-
Fragilaria sp. 1 Lyngb.	-	-	-	-	-	-	-
Frustulia rhomboides (Ehr.) Det.	-	-	-	-	-	8	-
Gomphonema angustatum v. productum Grun.	5	-	-	-	-	-	17
G. gracile Ehr. emend V.H.	3	-	-	-	-	-	-
G. parvulum (Kutz.)	-	[illegible]	45	64	72	17	35
Melosira distans (Ehr.) Kutz.	-	22	-	-	-	-	-
M. granulata (Ehr.) Ralfs	-	11	-	-	-	-	-
M. granulata v. angustissima Mull.	-	-	-	-	-	-	-
M. islandica Mull.	-	-	-	-	-	33	70
M. italica (Ehr.) Kutz.	-	-	-	-	-	-	-
M. varians C.A. Ag.	3	-	-	-	36	-	-
Navicula bicapitellata Hust.	-	-	-	-	24	-	-
N. confervaceae (Kutz.) Grun.	-	-	-	86	-	-	-
N. cryptocephala Kutz.	-	33	-	107	-	-	-
N. exigua Greg. ex Grun.	-	22	-	-	-	-	-
N. hungarica Grun.	-	11	-	-	-	-	-
N. pupula Kutz.	3	22	-	-	-	-	17
N. rhyncocephala Kutz.	-	-	-	-	-	8	-
N. trinunctata (Mull.) Bory.	-	-	-	-	24	-	-
N. viridula v. rostellata (Kutz.) CL.	-	-	-	-	-	-	-
Nitzschia acicularis W. Sm.	-	11	-	-	12	8	-
N. filiformis (W. Sm.) Hust.	-	-	-	21	12	-	-
N. holsatica Hust.	-	54	-	-	-	-	-
N. palea (Kutz) W. Sm.	3	11	23	81	83	-	17
Opephora? sp. Petit	-	-	-	-	-	-	-
Pinnularia brebissonii v. diminuta (Grun.) CL.	-	-	-	-	-	8	-
Pinnularia sp. 1 Ehr.	3	-	-	-	-	-	-
Rhizosolenia eriensis H.L. Sm.	-	-	-	-	-	-	-
Surirella angustata Kutz.	-	11	-	-	-	-	-
S. ovata Kutz.	-	-	23	-	-	-	-
S. ovata v. pinnata (W. Sm.)	-	-	-	-	-	-	-
Synedra actinastroides Lemm.	-	-	-	-	-	-	-

Taxa	Date / Time	5/5/79 1200	6/13/79 1700	7/26/79 1500	8/23/79 1430	9/20/79 1130	10/17/79 1030	12/13/79 1630
Bacillariophyta--Continued								
S. acus Kutz.		-	-	-	-	-	33	-
S. delicatissima W. Sm.		-	-	-	-	-	-	-
S. rumpens Kutz.		-	-	-	-	-	8	-
S. ulna (Nitz.) Ehr.		3	11	23	-	-	-	-
Synedra sp. Ehr.		-	-	-	64	-	-	-
Synedra sp. 1 Ehr.		-	-	-	-	-	-	-
Tabellaria fenestrata (Lyngb.) Kutz.		3	-	-	-	-	66	52
Chrysophyta								
Dinobryon sociale Ehr.		-	-	-	-	-	-	-
Cryptophyta								
Chroomonas sp. 1 Hans.		-	43	270	129	250	75	349
Cryptomonas ovata Ehr.		3	-	-	21	24	-	-
Cryptomonas sp. 1 Ehr.		-	11	45	-	-	-	52
Cryptomonas sp. 2 Ehr.		-	-	-	-	-	-	-
Chlorophyta								
Actinastrum Hantzschii v. elongatum G.M. Sm.		-	-	-	-	-	-	-
A. Hantzschii v. fluviatile Schroed.		-	-	-	-	-	-	-
Ankistrodesmus convolutus Corda.		-	-	-	21	-	-	-
A. falcatus (Corda.) Ralfs		-	43	158	21	-	25	-
A. falcatus v. mirabilis (West & West) G.S. West		-	-	-	-	-	8	-
Arthrodesmus incus (Breb.) Hass.		-	-	-	-	-	-	-
Carteria multifilis (Fres.) Dill.		10	11	45	-	-	-	-
Cephalomonas granulata Higenh.		-	-	-	-	-	-	-
Characium ambiguum Hermann		-	-	-	-	-	-	-
Characium sp. 1 A. Braun		5	-	23	-	-	-	-
Chlamydomonas epiphytica G. M. Sm.		-	-	-	-	-	-	-
C. globosa Snow		8	-	-	258	24	-	-
Chlamydomonas sp. 1 Ehr.		-	33	-	-	-	8	-
Chlamydomonas sp. 2 Ehr.		-	-	-	-	-	29	17
Chlorogonium elongnatum Dang. Lemm.		-	-	-	-	12	-	-
Closterium gracile Breb.		-	-	-	-	-	-	-
Coelastrum microporum Naeg.		-	-	-	-	-	-	-
C. proboscideum Bohlin.		-	-	-	-	-	-	-
C. reticulatum (Dang.) Senn.		-	-	-	-	-	-	-
C. sphaericum Naeg.		-	-	90	-	-	-	-
Cosmarium geometricum W. & G.S. West		-	-	-	-	-	-	-
Cosmarium sp. 1 Corda		-	-	23	-	-	-	-
Crucigenia fenestrata Schmid.		-	-	-	-	-	-	-
C. rectangularis (A. Br.) Gay		-	-	-	-	-	-	-
C. tetrapedia (Kirch.) West & West		-	-	-	-	-	-	-
Dictyosphaerium Ehrenbergianum Naeg.		-	65	-	-	24	-	-
D. pulchellum Wood		-	-	180	-	119	-	-
Golenkinia radiata (Chod.) Wille		-	-	-	-	-	-	-
Kirchneriella contorta (Schmid.) Bohl.		-	-	-	-	-	-	-
K. elongata G. M. Sm.		-	-	-	21	-	-	-

Taxa	Date / Time	5/5/79 1200	6/13/79 1700	7/26/79 1500	8/23/79 1430	9/20/79 1130	10/17/79 1030	12/13/79 1630
Chlorophyta--Continued								
K. lunaris v. Dianae Bohl.		-	-	45	21	12	-	-
K. lunaris v. irregularis G. M. Schmid.		-	-	-	-	-	-	-
K. obesa (W. West) Schmid.		-	-	23	-	-	-	-
K. subsolitaria G. S. West		10	65	-	-	-	8	17
Lagerheimia quadriset (Lemm.) G. M. Sm.		-	-	-	-	.	-	-
Micractinium pusillum Fres.		-	-	-	-		8	-
Nephrocytium limneticum (G. M. Sm.)		-	-	190	-	-	-	-
Oocystis Borgei Snow		-	-	-	-	-	-	17
O. lacustris Chod.		-	-	-	-	-	-	-
O. pusilla Hans.		-	-	-	-	-	-	-
O. pyriformis Prescott		-	-	-	-	-	-	-
Oocystis sp. Nageli		-	-	-	-	-	-	17
Pandorina morum (Muell.) Bory		-	-	-	344	-	-	-
Pediastrum biradiatum Meyen.		-	-	-	-	-	-	-
P. duplex v. gracillimum West & West		-	-	-	-	-	-	-
P. tetras v. tetraodon (Corda) Rabh.		-	-	-	-	-	66	-
Polyedriopsis spinulosa Schmid.		-	-	-	-	-	-	-
Radiofilum irregulare (Wille) Brunn.		-	-	-	-	-	-	-
Scenedesmus abundans (Kirch.) Chod.		-	-	45	-	-	-	-
S. bijuga (Turp.) Lagerh.		-	.	-	-	-	33	-
S. denticulatus Lagerh.		-	-	90	-	-	66	-
S. dimorphus (Turp.) Kuetz		-	-	-	-	-	-	-
S. incrassatulus Bohl.		10	-	-	-	-	-	-
S. obliquus (Turp.) Kuetz		-	-	-	-	-	33	838
S. opoliensis v. contacta Prescott		-	-	-	-	-	-	-
S. quadricauda (Turp.) De Breb.		-	65	315	43	95	17	70
Scenedesmus sp. 1 Meyen		-	-	-	-	-	-	-
Schroederia setigera (Schroed.) Lemm.		-	22	-	-	36	-	-
Selenastrum gracile Reinsch.		-	-	-	-	-	-	-
S. minutum (Naeg.) Collins		-	-	-	-	-	-	-
Spondylosium planum (Wolle) W. & G. S. West		-	-	-	-		-	-
Staurastrum apiculatum Breb.		-	-	-		-	-	-
S. chaetoceros (Schroed.) G. M. Sm.		-	-	-	-	-	-	-
S. dilitatum Ehr.		-	-	-	-	-	-	-
S. gracile Ralfs		-	-	-	-	12	-	-
S. granulosum (Ehr.) Ralfs		-	-	-	-	-	-	-
S. paradoxum Meyen.		-	-	23	-	-	-	-
Tetraedron caudatum (Corda) Hans.		-	-	-	-	-	-	-
T. minimum (A. Braun) Hans.		-	-	23	-	-	-	-
T. regulare v. incus Teil.		-	-	-	-	-	-	-
T. trigonum (Naeg.) Hans.		-	-	-	-	-	-	-
T. trigonum v. gracile (Rein.) Det.		-	-	-	-	-	-	-
Tetrastrum glabrum (Roll) Ahl. and Tiff.		-	-	-	-	48	-	-
T. staurogeniaeforme (Schroed.) Lemm.		-	-	-	-	-	-	-
T. triacanthum Kors.		-	-	-	-	-	-	-
Thoracomonas phacotoides G. M. Sm.		-	-	-	-	-	-	-
Treubaria setigerum G. M. Sm.		-	-	-	-	-	-	-
T. varia Ahl. and Tiff.		-	-	-	-	-	-	-
Westella botryoides (W. West) De Wild.		-	-	-	-	215	-	-
unidentified coccoid sp.		-	-	113	21	-	-	-

CH-12 (02338500) Chattahoochee River at U.S. Highway 27 at Franklin, Ga., 1979 -- Continued

Taxa / Date / Time	5/5/79 1200	6/13/79 1700	7/26/79 1500	8/23/79 1430	9/20/79 1130	10/17/79 1030	12/13/79 1630
Cyanophyta							
Agmenellum quadruplicatum Breh.	-	-	360	-	382	-	-
Anabaena sp. Bory	-	-	-	-	-	-	-
Anabaena sp. 1 Bory	-	43	113	-	346	-	-
Anabaena sp. 2 Bory	-	-	-	-	-	-	-
Anacystis cyanea Dr. and Daily	-	-	1,935	-	-	-	4,173
A. incerta Dr. and Daily	12,865	8,334	1,643	5,779	8,827	20,189	-
A. montana f. minor Dr. and Daily	-	-	-	-	-	-	-
A. thermalis Dr. and Daily	-	-	-	-	-	-	-
A. thermalis f. major (Lagerh.)	-	-	-	-	-	-	-
Anacystis sp. 1 Meneghini	-	434	23	-	24	-	262
Anacystis sp. 2 Meneghini	-	-	-	-	-	-	-
Aphanothece clathrata G. S. West	-	-	-	-	-	-	-
Aphanothece sp. 1 Nag.	-	-	1,958	-	-	-	-
Coccochloris peniocystis Dr. and Daily	-	-	-	43	-	-	-
Chroococcus sp. Nageli	-	-	-	-	-	-	-
Dactylococcopsis fascicularis Lemm.	-	-	-	-	-	-	-
Gomphosphaeria lacustris Chod.	-	-	-	21	-	-	-
Lyngbya contorta Lemm.	-	-	-	-	-	-	-
L. Diguetii Gomont	-	-	-	-	-	75	-
L. limnetica Lemm.	-	-	-	-	2,517	745	-
Lyngbya sp. 1 Agardh	-	-	405	-	-	-	-
Nostoc sp. Vaucher	-	-	-	-	-	-	-
Oscillatoria angustissima West & West	2,100	4,075	518	473	620	331	2,707
O. limnetica Lemm.	-	260	495	3,094	561	99	559
Palmogloea protuberans (Sm. & Sow.) Kuetz	-	-	-	-	-	-	-
Spirulina major Kuetz.	-	-	-	43	-	17	35
Euglenophyta							
Euglena sp. Ehr.	-	-	-	-	12	-	-
Trachelomonas varians (Lemm.) Defl.	-	-	-	-	-	-	-
T. volvocina Ehr.	-	-	-	-	12	-	-
Trachelomonas sp. Ehr.	-	-	-	-	12	-	-
Trachelomonas sp. 1 Ehr.	-	43	-	-	-	-	-
unidentified euglenoid sp. 1	-	-	-	-	-	-	-
Pyrrhophyta							
Glenodinium sp. Stein	-	-	-	-	-	-	-
Peridinium sp. Ehr.	-	-	-	-	-	-	-
Others							
unidentified phytoflagellates (<10u)	-	33	675	537	119	108	157
Total number of taxa observed	22	33	34	29	34	36	28
Total number of individuals per milliliter	15,117	14,007	10,156	11,526	14,722	22,285	9,931

CH-11A (02338570) Chattahoochee River above New River, near Corinth, Georgia, 1979

[Standing crop in cells per milliliter]

Date Time	5/4/79 1600	6/13/79 1400	7/26/79 1800	8/23/79 1330	9/20/79 0830	10/16/79 0945	12/12/79 1300
Bacillariophyta							
Achnanthes lanceolata Breb. ex Kutz.	-	-	-	-	-	-	13
A. minutissima Kutz.	4	-	85	114	-	7	13
Asterionella formosa Hass.	42	-	-	-	-	-	75
Cocconeis diminuta Pant.	-	-	43	-	-	-	-
C. placentula Ehr.	4	-	-	-	-	-	-
C. placentula v. euglypta (Ehr.) Cl.	-	-	-	-	-	-	-
Cyclotella atomus Hust.	-	22	-	170	26	102	13
C. glomerata Bach.	31	133	213	170	78	110	-
C. Meneghiniana Kutz.	-	-	-	170	-	7	13
C. stelligera Cl. and Grun.	-	-	-	-	-	-	-
Cymbella ventricosa Kutz.	-	-	-	-	-	-	-
Eunotia curvata (Kutz.) Lagerst	-	-	-	-	-	-	-
E. pectinalis (O.F. Mull.) Rabh.	4	-	-	-	-	7	-
Fragilaria bicapitata A. Mayer	-	-	-	-	-	-	-
F. brevistriata Grun.	8	-	-	-	-	-	-
F. crotonensis Kitton	-	-	-	-	-	-	-
F. intermedia Grun.	31	-	-	-	-	29	38
F. vaucheriae (Kutz.) Peters	-	-	128	170	52	7	-
Fragilaria sp. 1 Lyngb.	-	-	-	-	-	-	-
Frustulia rhomboides (Ehr.) Det.	4	-	-	-	-	-	-
Gomphonema angustatum v. productum Grun.	4	-	-	-	-	-	-
G. gracile Ehr. emend V.H.	-	-	-	-	-	-	-
G. parvulum (Kutz.)	-	-	-	-	52	15	-
Melosira distans (Ehr.) Kutz.	15	-	-	-	-	51	63
M. granulata (Ehr.) Ralfs	19	-	-	-	-	51	-
M. granulata v. angustissima Mull.	-	-	-	-	-	-	-
M. islandica Mull.	-	-	-	-	-	37	-
M. italica (Ehr.) Kutz.	-	-	-	-	-	-	-
M. varians C.A. Ag.	-	-	-	-	-	-	-
Navicula bicapitellata Hust.	-	22	-	57	-	7	-
N. confervaceae (Kutz.) Grun.	-	-	-	-	-	-	-
N. cryptocephala Kutz.	-	-	-	-	-	7	38
N. exigua Greg. ex Grun.	-	-	-	-	-	-	-
N. hungarica Grun.	-	44	-	-	-	-	-
N. pupula Kutz.	4	-	-	-	26	-	13
N. rhyncocephala Kutz.	-	-	-	-	-	-	-
N. tripunctata (Mull.) Bory.	-	-	-	-	-	-	-
N. viridula v. rostellata (Kutz.) Cl.	-	-	-	-	26	-	-
Nitzschia acicularis W. Sm.	4	-	-	-	-	15	-
N. filiformis (W. Sm.) Hust.	8	-	-	-	26	-	-
N. holsatica Hust.	-	-	-	-	-	-	-
N. palea (Kutz) W. Sm.	12	-	128	-	157	29	13
Opephora? sp. Petit	-	-	-	-	-	7	-
Pinnularia brebissonii v. diminuta (Grun.) Cl.	-	-	-	-	-	7	-
Pinnularia sp. 1 Ehr.	-	-	-	-	-	-	-
Rhizosolenia eriensis H.L. Sm.	-	-	-	-	-	-	-
Surirella angustata Kutz.	-	-	-	-	-	-	-
S. ovata Kutz.	-	-	-	-	-	-	-
S. ovata v. pinnata (W. Sm.)	-	-	43	-	-	-	-
Synedra actinastroides Lemm.	-	-	-	-	-	-	-

[Standing crop in cells per milliliter]

Date Time	5/4/79 1600	6/13/79 1400	7/26/79 1800	8/23/79 1330	9/20/79 0830	10/16/79 0945	12/12/79 1300
Bacillariophyta--Continued							
S. acus Kutz.	-	-	43	-	-	-	-
S. delicatissima W. Sm.	-	-	-	-	-	-	-
S. rumpens Kutz.	-	-	128	-	-	-	-
S. ulna (Nitz.) Ehr.	-	-	-	-	-	-	-
Synedra sp. Ehr.	-	-	-	-	-	-	-
Synedra sp. 1 Ehr.	-	-	-	-	-	-	-
Tabellaria fenestrata (Lyngb.) Kutz.	-	-	-	-	-	110	75
Chrysophyta							
Dinobryon sociale Ehr.	-	-	-	-	78	-	-
Cryptophyta							
Chroomonas sp. 1 Hans.	8	22	468	341	889	95	276
Cryptomonas ovata Ehr.	4	-	43	-	-	-	-
Cryptomonas sp. 1 Ehr.	-	66	298	57	165	-	50
Cryptomonas sp. 2 Ehr.	-	-	-	-	-	-	-
Chlorophyta							
Actinastrum Hantzschii v. elongatum G.M. Sm.	-	-	-	-	-	-	-
A. Hantzschii v. fluviatile Schroed.	-	-	-	-	-	-	-
Ankistrodesmus convolutus Corda.	-	-	-	-	131	7	-
A. falcatus (Corda.) Ralfs	19	155	43	738	-	-	25
A. falcatus v. mirabilis (West & West) G.S. West	-	-	-	-	-	-	-
Arthrodesmus incus (Breb.) Hass.	4	-	-	-	-	-	-
Carteria multifilis (Fres.) Dill.	58	842	340	511	-	15	-
Cephalomonas granulata Higenb.	-	-	-	-	-	-	-
Characium ambiguum Hermann	-	-	-	-	-	-	-
Characium sp. 1 A. Braun	-	-	-	-	-	-	-
Chlamydomonas epiphytica G. M. Sm.	-	-	-	-	-	-	-
C. globosa Snow	23	177	85	568	-	-	-
Chlamydomonas sp. 1 Ehr.	-	332	85	57	-	-	12
Chlorogonium elongnatum Dang.	-	-	43	-	-	-	-
Closteriopsis longissima Lemm.	-	-	-	-	26	-	-
Closterium gracile Breb.	-	-	-	-	-	7	-
Coelastrum microporum Naeg.	-	-	-	454	-	-	-
C. proboscideum Bohlin.	-	-	-	-	-	-	-
C. reticulatum (Dang.) Senn.	-	-	-	-	419	-	-
C. sphaericum Naeg.	-	-	340	-	-	-	-
Cosmarium geometricum W. & G.S. West	-	-	-	-	-	-	-
Cosmarium sp. 1 Corda	-	-	43	-	-	7	-
Crucigenia fenestrata Schmid.	-	-	-	-	-	-	-
C. rectangularis (A. Br.) Gay	-	-	-	-	-	-	-
C. tetrapedia (Kirch.) West & West	15	-	-	-	-	-	-
Dictyosphaerium Ehrenbergianum Naeg.	-	22	170	-	-	15	-
D. pulchellum Wood	-	-	-	454	-	-	-
Golenkinia radiata (Chod.) Wille	4	22	-	-	-	-	-
Kirchneriella contorta (Schmid.) Bohl.	-	-	-	284	-	-	-
K. elongata G. M. Sm.	-	-	-	-	-	-	-

[Standing crop in cells per milliliter]

Date / Time	5/4/79 1600	6/13/79 1400	7/26/79 1800	8/23/79 1330	9/20/79 0830	10/16/79 0945	12/12/79 1300
Chlorophyta--Continued							
K. lunaris v. Dianae Bohl.	-	-	-	227	-	-	13
K. lunaris v. irregularis G. M. Schmid.	-	-	-	-	-	-	-
K. obesa (W. West) Schmid.	-	22	43	57	-	-	-
K. subsolitaria G. S. West	-	66	85	-	-	-	13
Lagerheimia quadriseta (Lemm.) G. M. Sm.	-	22	-	-		-	-
Micractinium pusillum Fres.	-	-	-	-	-	29	-
Nephrocytium limneticum (G. M. Sm.)	-	-	-	-	-	-	-
Oocystis Borgei Snow	-	-	-	-	26	-	-
O. lacustris Chod.	-	-	-	-	-	-	-
O. pusilla Hans.	-	-	-	-	-	-	-
O. pyriformis Prescott	-	-	-	-	-	-	-
Oocystis sp. Nageli	-	-	-	-	-	-	-
Pandorina morum (Muell.) Bory	-	-	-	-	-	-	-
Pediastrum biradiatum Meyen.	-	-	-	-	-	-	-
P. duplex v. gracilimum West & West	-	-	-	-	-	-	-
P. tetras v. tetraodon (Corda) Rabh.	-	-	-	-	-	-	-
Polyedriopsis spinulosa Schmid.	-	-	-	-	-	-	-
Radiofilum irregulare (Wille) Brunn.	-	-	-	-	-	-	-
Scenedesmus abundans (Kirch.) Chod.	-		-	227	-	-	-
S. bijuga (Turp.) Lagerh.	-	-	-	-	-	-	-
S. denticulatus Lagerh.	-	-	-	-	-	29	-
S. dimorphus (Turp.) Kuetz	-	44	340	-	-	-	-
S. incrassatulus Bohl.	-	-	-	-	-	-	-
S. obliquus (Turp.) Kuetz	-	-	-	-	-	-	664
S. opoliensis v. contacta Prescott	-	-	-	341	-	-	-
S. quadricauda (Turp.) De Breb.	8	89	85	454	209	-	38
Scenedesmus sp. 1 Meyen	-	44	255	-	-	-	-
Schroederia setigera (Schroed.) Lemm.	-	22	-	-	26	7	-
Selenastrum gracile Reinsch.	-	-	-	-	-	-	-
S. minutum (Naeg.) Collins	-	-	-	-	-	-	-
Spondylosium planum (Wolle) W. & G. S. West	-	-	85	-	-	-	-
Staurastrum apiculatum Breb.	-	-	-	-	-	-	-
S. chaetoceros (Schroed.) G. M. Sm.	-	-	-	-	-	-	-
S. dilitatum Ehr.	-	-	-	-	-	-	-
S. gracile Ralfs	-	-	-	-	-	-	-
S. granulosum (Ehr.) Ralfs	-	-	-	-	-	7	-
S. paradoxum Meyen.	-	-	-	-	-	-	-
Tetraedron caudatum (Corda) Hans.	-	-	43	-	-	-	-
T. minimum (A. Braun) Hans.	-	-	-	-	-	-	13
T. regulare v. incus Teil.	-	-	-	-	-	-	-
T. trigonum (Naeg.) Hans.	-	-	-	-	-	-	-
T. trigonum v. gracile (Rein.) Det.	-	-	-	-	-	-	-
Tetrastrum glabrum (Roll) Ahl. and Tiff.		-	-	-	-	-	-
T. staurogeniaeforme (Schroed.) Lemm.	-	-	-	-	-	-	-
T. triacanthum Kors.	-	-	-	-	-	-	-
Thoracomonas phacotoides G. M. Sm.	-	22	-	-	-	-	-
Treubaria setigerum G. M. Sm.	-	-	-	-	-	-	-
T. varia Ahl. and Tiff.	-	-	43	-	-	-	-
Westella botryoides (W. West) De Wild.	-	598	170	-	-	-	-
unidentified coccoid sp.	-	-	-	568	-	-	-

[Standing crop in cells per milliliter]

Date Time	5/4/79 1600	6/13/79 1400	7/26/79 1800	8/23/79 1330	9/20/79 0830	10/16/79 0945	12/12/79 1300
Cyanophyta							
Agmenellum quadruplicatum Breb.	-	-	1,362	5,907	-	-	-
Anabaena sp. Bory	-	-	-	-	26	-	-
Anabaena sp. 1 Bory	-	-	-	-	-	-	-
Anabaena sp. 2 Bory	-	-	-	-	-	-	-
Anacystis cyanea Dr. and Daily	-	-	-	-	-	-	927
A. incerta Dr. and Daily	13,234	332	4,553	2,670	4,839	710	-
A. montana f. minor Dr. and Daily	-	-	-	-	-	-	-
A. thermalis Dr. and Daily	-	-	-	-	-	-	-
A. thermalis f. major (Lagerh.)	-	-	-	-	-	-	-
Anacystis sp. 1 Meneghini	62	-	170	-	-	-	-
Anacystis sp. 2 Meneghini	-	-	-	-	-	22	-
Aphanothece clathrata G. S. West	-	-	-	-	-	-	-
Aphanothece sp. 1 Nag.	-	-	-	-	-	-	-
Coccochloris peniocystis Dr. and Daily	-	-	85	-	-	-	-
Chroococcus sp. Nageli	-	-	-	-	-	-	-
Dactylococcopsis fascicularis Lemm.	-	-	-	-	-	-	-
Gomphosphaeria lacustris Chod.	-	-	-	-	-	-	-
Lyngbya contorta Lemm.	-	-	-	-	-	-	-
L. Diguetii Gomont	-	-	-	-	-	-	-
L. limnetica Lemm.	-	-	-	-	785	-	-
Lyngbya sp. 1 Agardh	-	-	-	-	-	-	-
Nostoc sp. Vaucher	-	-	-	-	-	-	-
Oscillatoria angustissima West & West	308	2,126	-	966	1,046	73	1,153
O. limnetica Lemm.	96	-	596	1,704	-	358	-
Palmogloea protuberans (Sm. & Sow.) Kuetz	-	-	-	-	-	-	-
Spirulina major Kuetz.	-	-	-	284	-	-	-
Euglenophyta							
Euglena sp. Ehr.	-	-	85	-	-	7	-
Trachelomonas varians (Lemm.) Defl.	-	-	-	-	-	-	-
T. volvocina Ehr.	-	-	-	-	26	-	-
Trachelomonas sp. Ehr.	-	-	-	57	-	7	13
Trachelomonas sp. 1 Ehr.	-	-	-	-	-	-	-
unidentified euglenoid sp. 1	-	-	-	-	-	-	-
Pyrrhophyta							
Glenodinium sp. Stein	-	-	-	-	-	-	-
Peridinium sp. Ehr.	-	-	-	-	-	-	-
Others							
unidentified phytoflagellates (<10μ)	27	155	1,064	1,022	549	29	313
Total number of taxa observed	29	24	35	28	23	35	24
Total number of individuals per milliliter	14,064	5,401	11,833	18,799	9,623	2,029	3,877

CH-10 (02338710) Chattahoochee River at State Highway 219, near LaGrange, Ga., 1978

[Standing crop in cells per milliliter: *, present in insufficient densities to establish accurate count]

Taxa / Date / Time	4/17/78 1530	5/2/78 1400	[illegible]/5/78 [illegible]300	7/12/78 0945	8/16/78 1330	8/29/78 1000
Bacillariophyta						
Achnanthes Bory	-	-	-	-	-	-
Asterionella Hassall	-	-	-	-	-	-
Cyclotella Brebisson	2,200	910	3,600	430	-	-
Cymbella Agardh	-	-	-	-	-	-
Eunotia Ehrenberg	-	-	-	-	-	-
Fragilaria Lyngbye	-	80	320	-	-	180
Gomphonema Hustedt	-	9	-	-	-	-
Melosira Kutzing	-	430	-	-	-	-
Meridion Agardh	-	-	-	-	-	-
Navicula Bory	-	27	-	-	-	-
Nitzschia Hassall	-	88	1400	290	-	180
Rhizosolenia Brightwell emend Ehrenberg	-	18	-	-	-	-
Synedra Ehrenberg	-	-	-	140	-	-
Tabellaria Ehrenberg	-	-	-	-	-	-
Chlorophyta						
Actinastrum Lagerheim	1,200	-	*	-	-	-
Ankistrodesmus Corda	600	160	-	430	400	360
Carteria Diesing	-	-	160	-	-	540
Characium A. Braun	-	-	-	-	-	-
Chlamydomonas Ehrenberg	2,100	410	950	580	1,600	900
Chlorogonium Ehrenberg	-	62	630	290	400	360
Chodatella Lemmermann	-	27	-	-	-	-
Closteriopsis Lemmermann	-	9	-	-	-	-
Coccomonas Stein	-	9	-	-	-	-
Coelastrum Nageli	-	160	-	-	-	-
Cosmarium Corda	-	9	-	-	-	-
Crucigenia Morren	-	35	-	580	-	-
Dichotomococcus Korshikov	-	-	-	-	-	-
Dictyosphaerium Nageli	-	27	4,300	-	-	-
Dysmorphococcus Takeda	-	-	-	-	-	180
Elakatothrix Wille	-	-	-	-	-	-
Euastrum Ehrenberg	-	-	-	140	-	-
Franceia Lemmermann	-	-	-	-	-	180
Gloeoactinium G. M. Smith	900	-	-	-	-	-
Gloeocystis Nageli	-	-	-	-	-	-
Golenkinia Chodat	-	-	-	-	-	360
Gonium Muller	-	-	-	-	-	-
Kirchneriella Schmidle	200	27	1,700	580	-	-
Micractinium Fresenius	-	280	1,300	1,200	400	-
Mougeotia Agardh	-	-	-	-	-	-
Oocystis Nageli	-	71	-	140	-	-
Pandorina Bory	800	-	-	-	-	-
Pediastrum Meyer	-	-	-	-	-	-
Pteromonas Seligo	-	-	-	-	-	-
Scenedesmus Meyen	-	53	2,100	15,000	2,400	360
Selenastrum Reinsch	400	-	160	870	-	1,600
Schroederia Lemmermann	100	9	*	140	-	-
Spermatozoopsis Korshikov	-	-	-	-	*	-
Sphaerocystis Chodat	-	-	-	-	-	-
Staurastrum Meyen	-	9	-	-	-	-

Taxa / Date / Time	4/17/78 1530	5/2/78 1400	6/5/78 1300	7/12/78 0945	8/16/78 1330	8/29/78 1000
Chlorophyta--Continued						
Tetraedron Kutzing	-	-	*	140	400	-
Tetrastrum Chodat	-	-	*	-	-	-
Treubaria Bernard	-	-	-	-	-	-
Westella de Wildermann	-	-	-	-	-	-
Wislouchiella Skvortzow	-	-	-	-	-	-
Volvox Linnaeus	-	-	-	-	-	-
Chrysophyta						
Centritractus Lemmermann	-	-	470	-	-	-
Chrysococcus Klebs	-	44	-	-	-	-
Chrysosphaerella Lauterborn	-	-	-	-	-	-
Dinobryon Ehrenberg	-	190	-	-	-	-
Mallomonas Perty	-	-	*	-	-	-
Ochromonas Wysotski	-	-	-	-	-	-
Synura Ehrenberg	-	35	*	-	-	-
Cryptophyta						
Chroomonas Hansgirg	-	9	160	-	1,200	-
Cryptomonas Ehrenberg	200	190	2,700	290	1,600	-
Cyanophyta						
Agmenellum quadruplicatum (Meneghini) Brebisson	-	1,600	130,000	-	160,000	98,000
Agmenellum Brebisson	120,000	-	-	62,000	-	-
Anabaena Bory	-	110	-	-	-	-
Anacystis cyanea Drouet and Daily	-	-	-	-	-	-
A. incerta (Lemmermann) Drouet and Daily	-	-	21,000	60,000	200,000	26,000
Anacystis Meneghini	3,500	220	-	-	-	-
Aphanizomenon Morren	-	-	-	-	2,800	-
Coccochloris Sprengel	-	27	-	-	-	-
Hormogonales	-	-	-	-	18,000	7,600
Lyngbya Agardh	-	-	-	580	24,000	12,000
Oscillatoria Vaucher	19,000	150	1,300	2,600	4,800	3,300
Phormidium Kutzing	-	-	-	-	-	-
Raphidiopsis Fritsch and Rich	-	-	-	-	43,000	12,000
Euglenophyta						
Euglena Ehrenberg	-	9	-	-	-	-
Lepocynclis Perty	-	9	*	-	-	-
Trachelomonas Ehrenberg	500	18	*	-	-	180
Pyrrophyta						
Glenodinium Stein	-	-	-	-	-	-
Gymnodinium Kofoid and Swezy	-	9	-	-	-	-
Peridinium Ehrenberg	-	-	-	-	-	-
Total number of taxa observed	14	37	25	20	16	13
Total number of cells per milliliter	151,700	5,540	172,250	146,420	458,600	164,280

CH-10 (02338710) Chattahoochee River at State Highway 219, near LaGrange, Ga., 1979

[Standing crop in cells per milliliter]

Date Time	5/4/79 1800	6/15/79 1615	7/27/79 1700	8/24/79 1500	9/20/79 1300	10/17/79 0800	12/12/79 1600
Bacillariophyta							
Achnanthes lanceolata Breb. ex Kutz.	-	-	-	-	-	-	-
A. minutissima Kutz.	12	-	-	-	-	-	-
Asterionella formosa Hass.	40	-	-	-	-	-	-
Cocconeis diminuta Pant.	-	-	-	-	-	-	-
C. placentula Ehr.	-	-	-	-	-	-	-
C. placentula v. euglypta (Ehr.) Cl.	-	-	-	-	-	-	-
Cyclotella atomus Hust.	-	372	-	966	67	546	190
C. glomerata Bach.	29	558	562	552	401	425	48
C. Meneghiniana Kutz.	12	-	-	552	-	61	-
C. stelligera Cl. and Grun.	-	93	-	-	-	-	-
Cymbella ventricosa Kutz.	-	-	-	-	-	-	-
Eunotia curvata (Kutz.) Lagerst	-	-	-	-	-	-	-
E. pectinalis (O.F. Mull.) Rabh.	-	-	-	138	-	-	-
Fragilaria bicapitata A. Mayer	-	-	-	-	-	-	-
F. brevistriata Grun.	-	-	-	-	-	-	-
F. crotonensis Kitton	-	-	-	-	-	-	-
F. intermedia Grun.	17	-	141	138	-	-	-
F. vaucheriae (Kutz.) Peters	-	-	281	276	67	-	-
Fragilaria sp. 1 Lyngb.	-	-	-	-	-	-	-
Frustulia rhomboides (Ehr.) Det.	-	-	-	-	-	-	-
Gomphonema angustatum v. productum Gran.	6	-	-	-	-	-	-
G. gracile Ehr. emend V.H.	-	-	-	-	-	-	-
G. parvulum (Kutz.)	-	-	-	-	-	61	-
Melosira distans (Ehr.) Kutz.	-	-	-	-	-	121	286
M. granulata (Ehr.) Ralfs	-	-	-	276	67	-	-
M. granulata v. angustissima Mull.	-	-	-	-	-	-	-
M. islandica Mull.	-	-	-	-	-	-	-
M. italica (Ehr.) Kutz.	12	-	-	-	-	-	-
M. varians C.A. Ag.	-	-	-	-	-	-	-
Navicula bicapitellata Hust.	-	-	-	-	-	-	-
N. confervaceae (Kutz.) Grun.	-	-	-	-	-	-	-
N. cryptocephala Kutz.	-	-	-	-	-	121	-
N. exigua Greg. ex Grun.	-	-	-	-	-	-	-
N. hungarica Grun.	-	-	-	-	-	-	-
N. pupula Kutz.	-	-	-	-	-	-	-
N. rhyncocephala Kutz.	-	-	-	-	-	-	-
N. tripunctata (Mull.) Bory.	-	-	-	-	-	-	-
N. viridula v. rostellata (Kutz.) Cl.	-	-	-	-	-	-	-
Nitzschia acicularis W. Sm.	12	47	141	-	134	-	-
N. filiformis (W. Sm.) Hust.	-	-	-	-	-	-	-
N. holsatica Hust.	-	140	281	-	-	-	-
N. palea (Kutz) W. Sm.	23	-	-	-	67	-	-
Opephora? sp. Petit	-	-	-	-	-	-	-
Pinnularia brebissonii v. diminuta (Grun.) Cl.	-	-	-	-	-	-	-
Pinnularia sp. 1 Ehr.	-	-	-	-	-	-	-
Rhizosolenia eriensis H.L. Sm.	-	-	-	-	-	-	-
Surirella angustata Ku.	-	-	-	-	-	-	-
S. ovata Kutz.	-	-	-	-	-	-	-
S. ovata v. pinnata (W. Sm.)	-	-	-	-	-	-	-
Synedra actinastroides Lemm.	-	-	-	276	-	-	-

Date Time	5/4/79 1800	6/15/79 1615	7/27/79 1700	8/24/79 1500	9/20/79 1300	10/17/79 0800	12/12/79 1600
Bacillariophyta--Continued							
S. acus Kutz.	-	-	-	-	67	61	-
S. delicatissima W. Sm.	6	-	-	-	-	-	-
S. rumpens Kutz.	-	-	-	-	-	-	-
S. ulna (Nitz.) Ehr.	-	-	-	-	-	-	-
Synedra sp. Ehr.	-	-	-	-	-	-	-
Synedra sp. 1 Ehr.	-	-	-	-	-	-	-
Tabellaria fenestrata (Lyngb.) Kutz.	6	-	-	-	-	-	143
Chrysophyta							
Dinobryon sociale Ehr.	-	-	-	-	-	-	-
Chyptophyta							
Chroomonas sp. 1 Hans.	-	98	884	-	138	1,605	2,062
Cryptomonas ovata Ehr.	-	69	-	-	-	-	-
Cryptomonas sp. 1 Ehr.	-	6	465	984	276	535	485
Cryptomonas sp. 2 Ehr.	-	-	-	-	-	-	303
Chlorophyta							
Actinastrum Hantzschii v. elongatum G.M. Sm.	-	-	-	-	-	-	-
A. Hantzschii v. fluviatile Schroed.	-	-	-	-	-	-	-
Ankistrodesmus convolutus Corda.	-	-	-	276	134	-	143
A. falcatus (Corda.) Ralfs	29	93	-	1,104	-	-	48
A. falcatus v. mirabilis (West & West) G.S. West	-	-	-	-	-	-	-
Arthrodesmus incus (Breb.) Hass.	-	-	-	-	-	-	-
Carteria multifilis (Fres.) Dill.	462	791	-	552	-	-	143
Cephalomonas granulata Higenb.	12	-	-	-	-	-	-
Characium ambiguum Hermann	-	-	-	-	-	-	-
Characium sp. 1 A. Braun	-	-	-	-	-	-	-
Chlamydomonas epiphytica G. M. Sm.	-	-	-	138	-	-	-
C. globosa Snow	87	93	-	552	67	-	381
Chlamydomonas sp. 1 Ehr.	-	512	-	-	267	425	48
Chlorogonium elongatum Dang.	6	47	-	-	-	-	-
Closteriopsis longissima Lemm.	-	-	-	-	-	-	-
Closterium gracile Breb.	-	-	-	-	-	-	-
Coelastrum microporum Naeg.	-	-	-	-	-	-	-
C. proboscideum Bohlin.	-	-	-	-	-	-	-
C. reticulatum (Dang.) Senn.	-	-	-	-	-	-	-
C. sphaericum Naeg.	-	-	-	-	-	-	-
Cosmarium geometricum W. & G.S. West	-	-	-	-	-	-	-
Cosmarium sp. 1 Corda	-	-	-	552	-	-	-
Crucigenia fenestrata Schmidl.	-	-	-	-	-	-	-
C. rectangularis (A. Br.) Gay	-	-	2,248	-	-	-	-
C. tetrapedia (Kirch.) West & West	-	-	-	-	-	-	-
Dictyosphaerium Ehrenbergianum Naeg.	-	791	-	-	267	243	-
D. pulchellum Wood	46	-	-	1,104	-	-	-
Golenkinia radiata (Chod.) Wille	-	93	141	-	-	61	-
Kirchneriella contorta (Schmid.) Bohl.	-	-	-	-	67	-	-
K. elongata G. M. Sm.	-	-	-	-	-	-	-

Date Time	5/4/79 1800	6/15/79 1615	7/27/79 1700	8/24/79 1500	9/20/79 1300	10/17/79 0800	12/12/79 1600
Chlorophyta--Continued							
K. lunaris v. Dianae Bohl.	-	47	141	414	-	182	-
K. lunaris v. irregularis G. M. Schmid.	-						
K. obesa (W. West) Schmid.	-	47	-	138	134	-	-
K. subsolitaria G. S. West	-	-	-	-	-	-	-
Lagerheimia quadriseta (Lemm.) G. M. Sm.	-	-	-	-	-	-	-
Micractinium pusillum Pres.	-	-	-	-	-	-	-
Nephrocytium limneticum (G. M. Sm.)	-	-	-	-	-	-	-
Oocystis Borgei Snow	-	-	562	-	-	-	-
O. lacustris Chod.	23	-	-	138	-	-	-
O. pusilla Hans.	-	-	-	-	-	-	-
O. pyriformis Prescott	-	-	-	-	-	-	-
Oocystis sp. Nageli	-	-	-	-	-	-	-
Pandorina morum (Muell.) Bory	-	-	-	-	-	-	-
Pediastrum biradiatum Meyen.	-	-	-	-	-	-	-
P. duplex v. gracilimum West & West	-	-	-	-	-	-	-
P. tetras v. tetraodon (Corda) Rabh.	-	-	-	-	-	-	190
Polyedriopsis spinulosa Schmid.	-	47	-	-	-	-	-
Radiofilum irregulare (Wille) Brunn.	-	-	-	-	-	-	-
Scenedesmus abundans (Kirch.) Chod.	-	-	-	276	-	-	-
S. bijuga (Turp.) Lagerh	-	-	-	-	-	-	-
S. denticulatus Lagerh.	-	-	562	552	134	-	-
S. dimorphus (Turp.) Kuetz	-	-	-	-	-	-	-
S. incrassatulus Bohl.	-	-	-	-	-	-	-
S. obliquus (Turp.) Kuetz	-	-	-	-	-	-	999
S. opoliensis v. contacta Prescott	-	-	-	-	-	-	-
S. quadricauda (Turp.) De Breb.	23	279	281	7,173	134	121	-
Scenedesmus sp. 1 Meyen	-	186	-	552	-	-	-
Schroederia setigera (Schroed.) Lemm.	-	-	281	-	67	-	-
Selenastrum gracile Reinsch.	-	-	-	-	-	-	-
S. minutum (Naeg.) Collins	12	-	-	-	-	-	-
Spondylosium planum (Wolle) W. & G. S. West	-	-	-	-	-	-	-
Staurastrum apiculatum Breb.	-	-	-	-	-	-	-
S. chaetoceros (Schroed.) G. M. Sm.	-	-	141	268	-	-	-
S. dilitatum Ehr.	-	-	-	-	-	-	-
S. gracile Ralfs	-	-	-	-	-	-	-
S. granulosum (Ehr.) Ralfs	-	-	-	-	-	-	-
S. paradoxum Meyen.	-	-	-	-	-	-	-
Tetraedron caudatum (Corda) Hans.	-	-	-	-	-	-	-
T. minimum (A. Braun) Hans.	-	-	-	-	-	-	-
T. regulare v. incus Teil.	-	-	-	-	-	-	-
T. trigonum (Naeg.) Hans.	-	-	-	-	-	-	-
T. trigonum v. gracile (Rein.) Det.	-	-	-	-	-	-	-
Tetrastrum glabrum (Roll) Ahl. and Tiff.	-	-	-	-	-	-	-
T. staurogeniaeforme (Schroed.) Lemm.	-	-	-	-	-	-	-
T. triacanthum Kors.	-	-	-	-	-	-	45
Thoracomonas phacotoides G. M. Sm.	-	-	-	-	67	-	-
Treubaria setigerum G. M. Sm.	-	-	-	-	-	61	-
T. varia Ahl. and Tiff.	-	-	-	-	-	-	-
Westella botryoides (W. West) De Wild.	-	-	-	-	-	-	-
unidentified coccoid sp.	-	-	-	-	-	-	-

Date Time	5/4/79 1800	6/15/79 1615	7/27/79 1700	8/24/79 1500	9/20/79 1300	10/17/79 0800	12/12/79 1600
Cyanophyta							
Agmenellum quadruplicatum Breb.	-	3,360	225,830	144,976	17,720	12,373	-
Anabaena sp. Bory	-	-	-	-	-	788	-
Anabaena sp. 1 Bory	-	-	-	-	-	-	-
Anabaena sp. 2 Bory	-	-	-	-	-	-	-
Anacystis cyanea Dr. and Daily	-	-	-	-	-	-	428
A. incerta Dr. and Daily	647	1,024	60,287	41,382	10,498	3,336	-
A. montana f. minor Dr. and Daily	-	-	-	-	-	-	-
A. thermalis Dr. and Daily	-	-	-	-	-	-	-
A. thermalis f. major (Lagerh.)	-	-	-	-	-	-	-
Anacystis sp. 1 Meneghini	-	-	-	1,241	-	-	48
Anacystis sp. 2 Meneghini	-	-	-	-	-	-	-
Aphanothece clathrata G. S. West	-	-	-	-	-	4,280	-
Aphanothece sp. 1 Nag.	-	-	141	-	-	-	-
Coccochloris peniocystis Dr. and Daily	-	-	-	-	-	-	-
Chroococcus sp. Nageli	-	-	-	-	-	-	-
Dactylococcopsis fascicularis Lemm.	-	-	-	-	-	243	-
D. raphidioides Hansg.	-	-	-	-	-	-	95
Gomphosphaeria lacustris Chod.	-	-	-	-	-	535	1,759
Lyngbya contorta Lemm.	-	-	1,827	1,379	-	-	-
L. Diguetii Gomont	-	-	-	-	-	-	-
L. limnetica Lemm.	-	-	-	-	2,340	-	-
Lyngbya sp. 1 Agardh	-	-	-	-	-	-	-
Nostoc sp. Vaucher	-	-	-	-	-	-	-
Oscillatoria angustissima West & West	173	-	-	4,414	6,687	-	1,153
O. limnetica Lemm.		2,373	-	5,656	-	-	-
Palmogloea protuberans (Sm. & Sow.) Kuetz	-	-	-	-	-	-	-
Spirulina major Kuetz.	-	-	-	-	-	-	-
Euglenophyta							
Euglena sp. Ehr.	-	-	-	-	-	-	-
Trachelomonas varians (Lemm.) Defl.	-	-	-	-	-	-	-
T. volvocina Ehr.	-	-	-	-	67	61	-
Trachelomonas sp. Ehr.	-	-	-	-	-	-	-
Trachelomonas sp. 1 Ehr.	-	-	-	-	-	-	-
unidentified euglenoid sp. 1	-	-	141	-	-	-	-
Pyrrhophyta							
Glenodinium sp. Stein	-	-	-	-	-	-	-
Peridinium sp. Ehr.	-	-	-	-	-	-	-
Others							
unidentified phytoflagellates (<10u)	133	186	141	3,085	936	606	511
Total number of taxa observed	23	25	21	32	25	23	21
Total number of individuals per milliliter	1,828	11,352	295,479	220,080	40,870	26,851	9,511

CH-07 (02338720) Chattahoochee River (City of LaGrange intake) near LaGrange, Ga., 1978

[Standing crop in cells per milliliter; *, present in insufficient densities to establish accurate count]

Taxa	Date / Time	4/12/78 1400	5/4/78 1245	6/1/78 1315	7/11/78 1345	8/17/78 0915	8/29/78 1415
Bacillariophyta							
Achnanthes Bory		-	-	-	-	2,300	*
Asterionella Hassall		-	-	-	-	-	-
Cyclotella Brebisson		13,000	1,700	1,200	130	470	-
Cymbella Agardh		-	-	-	-	-	-
Eunotia Ehrenberg		-	-	-	-	-	-
Fragilaria Lyngbye		-	64	-	-	-	-
Gomphonema Hustedt		-	-	-	-	-	-
Melosira Kutzing		960	1,400	-	-	470	-
Meridion Agardth		-	-	-	-	-	-
Navicula Bory		-	-	-	-	-	-
Nitzscnia Hassall		240	210	1,400	-	-	-
Rhizosolenia Brightwell emend Ehrenberg		-	-	-	530	-	-
Synedra Ehrenberg		-	-	-	130	-	-
Tabellaria Ehrenberg		-	-	-	*	-	-
Chlorophyta							
Actinastrum Lagerheim		-	340	-	-	-	280
Ankistrodesmus Corda		1,200	710	700	-	-	-
Carteria Diesing		-	-	-	130	*	-
Characium A. Braun		-	-	-	-	-	-
Chlamydomonas Ehrenberg		2,200	1,100	460	-	-	-
Chlorogonium Ehrenberg		-	-	460	130	470	-
Chodatella Lemmermann		240	43	-	-	-	-
Closteriopsis Lemmermann		-	-	-	-	-	-
Coccomonas Stein		-	64	-	-	-	-
Coelastrum Nageli		-	-	-	-	-	-
Cosmarium Corda		-	-	-	130	-	-
Crucigenia Morren		-	-	-	1,600	-	-
Dichotomococcus Korshikov		-	-	-	-	-	-
Dictyosphaerium Nageli		-	340	-	-	2,300	-
Dysmorphococcus Takeda		-	-	-	-	-	-
Elakatothrix Wille		-	-	-	-	-	-
Euastrum Ehrenberg		-	-	-	-	-	-
Franceia Lemmermann		-	-	-	-	-	-
Gloeoactinium G. M. Smith		-	340	-	-	-	-
Gloeocystis Nageli		-	-	-	-	-	-
Golenkinia Chodat		-	21	230	-	-	570
Gonium Muller		-	-	-	-	-	-
Kirchneriella Schmidle		-	-	1,600	-	-	-
Micractinium Fresenius		2,600	810	930	400	-	-
Mougeotia Agardh		-	-	-	-	-	-
Oocystis Nageli		-	64	-	-	-	-
Pandorina Bory		-	-	-	-	-	-
Pediastrum Meyer		-	-	*	-	-	-
Pteromonas Seligo		-	110	-	-	-	-
Scenedesmus Meyen		960	340	3,200	2,900	6,600	570
Selenastrum Reinsch		1,400	85	1,400	130	-	570
Schroederia Lemmermann		-	-	*	-	-	2,000
Spermatozoopsis Korshikov		-	-	-	-	-	-
Sphaerocystis Chodat		-	-	-	-	-	-
Staurastrum Meyen		-	-	-	130	-	-

Taxa	Date Time	4/12/78 1400	5/4/78 1245	6/1/78 1315	7/11/78 1345	8/17/78 0915	8/29/78 1415
Chlorophyta--Continued							
Tetraedron Kutzing		-	-	-	130	470	-
Tetrastrum Chodat		3,800	-	-	-	-	-
Treubaria Bernard		-	21	-	270	-	-
Westella de Wildermann		-	-	-	-	470	570
Wislouchiella Skvortzow		-	21	-	-	-	-
Volvox Linnaeus		-	-	-	-	-	-
Chrysophyta							
Centritractus Lemmermann		-	-	-	-	-	-
Chrysococcus Klebs		-	-	-	-	-	-
Chrysophaerella Lauterborn		-	-	-	-	-	-
Dinobryon Ehrenberg		-	21	-	-	-	-
Mallomonas Perty		-	-	-	-	-	-
Ochromonas Wysotski		480	-	-	-	-	-
Synura Ehrenberg		-	-	-	-	-	-
Cryptophyta							
Chroomonas Hansgirg		-	150	-	130	470	-
Cryptomonas Ehrenberg		720	510	700	130	470	280
Cyanophyta							
Agmenellum quadruplicatum (Meneghini) Brebisson		-	12,000	430,000	48,000	77,000	-
Agmenellum Brebisson		22,000	-	-	-	-	51,000
Anabaena Bory		-	-	-	-	-	-
Anacystis cyanea Drouet and Daily		-	-	-	-	-	-
A. incerta (Lemmermann) Drouet and Daily		-	-	210,000	70,000	71,000	-
Anacystis Meneghini		8,600	600	-	400	-	50,000
Aphanizomenon Morren		-	-	-	-	-	-
Coccochloris Sprengel		-	210	-	-	-	-
Hormogonales			190				
Lyngbya Agardh		-	-	-	20,000	25,000	19,000
Oscillatoria Vaucher		4,100	660	14,000	130	9,800	3,100
Phormidium Kutzing		-	-	-	-	-	2,300
Raphidiopsis Fritsch and Rich		-	-	-	530	97,000	53,000
Euglenophyta							
Euglena Ehrenberg		-	21	-	-	-	-
Lepocynclis Perty		-	-	-	-	-	-
Trachelomonas Ehrenberg		-	43	-	-	-	-
Pyrrophyta							
Glenodinium Stein		-	-	-	-	-	-
Gymnodinium Kofoid and Swezy		-	-	-	-	-	-
Peridinium Ehrenberg		-	-	-	-	-	-
Total number of taxa observed		15	29	15	22	16	14
Total number of cells per milliliter		62,500	22,188	666,280	146,060	294,290	183,240

CH-07 (02338720) Chattahoochee River (City of LaGrange intake) near LaGrange, Ga., 1979

[Standing crop in cells per milliliter]

Date Time	5/5/79 0900	6/15/79 1430	7/27/79 1430	8/24/79 1230	9/20/79 1330	10/17/79 1300	12/12/79 1700
Bacillariophyta							
Achnanthes lanceolata Breb. ex Kutz.	-	-	-	-	-	-	-
A. minutissima Kutz.	111	-	-	-	-	-	58
Asterionella formosa Hass.	55	-	-	-	-	-	-
Cocconeis diminuta Pant.	-	-	-	-	-	-	-
C. placentula Ehr.	-	-	-	-	-	-	-
C. placentula v. euglypta (Ehr.) Cl.	-	-	-	-	-	-	-
Cyclotella atomus Hust.	-	907	283	1,878	5	176	233
C. glomerata Bach.	111	453	989	-	614	396	117
C. Meneghiniana Kutz.	-	-	141	134	-	264	-
C. stelligera Cl. and Grun.	55	91	-	-	-	-	-
Cymbella ventricosa Kutz.	-	-	-	-	-	-	-
Eunotia curvata (Kutz.) Lagerst	-	-	-	-	-	-	-
E. pectinalis (O.F. Mull.) Rabh.	-	-	-	-	-	-	-
Fragilaria bicapitata A. Mayer	-	-	-	-	-	-	-
F. brevistriata Grun.	-	-	-	-	-	-	-
F. crotonensis Kitton	-	-	-	-	-	-	-
F. intermedia Grun.	-	-	-	-	-	-	-
F. vaucheriae (Kutz.) Peters	-	136	283	268	103	-	-
Fragilaria sp. 1 Lyngb.	-	-	-	-	-	-	-
Frustulia rhomboides (Ehr.) Det.	-	-	-	-	-	-	-
Gomphonema angustatum v. productum Grun.	-	-	-	-	-	-	-
G. gracile Ehr. emend V.H.	-	-	-	-	-	-	-
G. parvulum (Kutz.)	-	-	-	-	-	-	-
Melosira distans (Ehr.) Kutz.	111	363	283	-	103	264	350
M. granulata (Ehr.) Ralfs	387	-	-	-	-	-	-
M. granulata v. angustissima Mull.	-	-	-	-	-	-	-
M. islandica Mull.	-	-	-	-	-	-	-
M. italica (Ehr.) Kutz.	-	-	-	-	-	-	-
M. varians C.A. Ag.	-	-	-	-	-	-	-
Navicula bicapitellata Hust.	-	-	-	-	-	-	-
N. confervaceae (Kutz.) Grun.	-	-	-	-	-	-	-
N. cryptocephala Kutz.	-	-	-	-	-	-	58
N. exigua Greg. ex Grun.	-	-	-	-	-	-	-
N. hungarica Grun.	-	-		-	-	-	-
N. pupula Kutz.	-	-		-	-	-	-
N. rhyncocephala Kutz.	-	-	-	-	-	-	-
N. tripunctata (Mull.) Bory.	-	-	-	-	-	-	-
N. viridula v. rostellata (Kutz.) Cl.	-	-	-	-	-	-	-
Nitzschia acicularis W. Sm.	55	-	141	134	413	-	58
N. filiformis (W. Sm.) Hust.	-	-	-	-	-	-	-
N. holsatica Hust.	-	408	-	-	-	-	-
N. palea (Kutz) W. Sm.	-	-	-	-	-	44	-
Opephora? sp. Petit	-	-	-	-	-	-	-
Pinnularia brebissonii v. diminuta (Grun.) Cl.	-	-	-	-	-	-	-
Pinnularia sp. 1 Ehr.	-	-	-	-	-	-	-
Rhizosolenia eriensis H.L. Sm.	-	-	-	-	-	-	-
Surirella angustata Kutz.		-	-	-	-	-	-
S. ovata Kutz.	-	-	-	-	-	-	-
S. ovata v. pinnata (W. Sm.)	-	-	-	-	-	-	-
Synedra actinastroides Lemm.	-	-	-	-	-	-	-

Date Time	5/5/79 0900	6/15/79 1430	7/27/79 1430	8/24/79 1230	9/20/79 1330	10/17/79 1300	12/12/79 1700
Bacillariophyta--Continued							
S. acus Kutz.	-	-	-	268	-	-	-
S. delicatissima W. Sm.	-	-	-	-	-	-	-
S. rumpens Kutz.	-	-	-	-	-	-	-
S. ulna (Nitz.) Ehr.	-	-	-	-	-	-	-
Synedra sp. Ehr.	-	-	-	-	-	-	-
Synedra sp. 1 Ehr.	-	-	-	-	-	-	-
Tabellaria fenestrata (Lyngb.) Kutz.	-	-	-	-	-	44	-
Chrysophyta							
Dinobryon sociale Ehr.	-	-	-	-	-	-	-
Cryptophyta							
Chroomonas sp. 1 Pasc.	996	1,179	989	805	1,858	704	2,099
Cryptomonas ovata Ehr.	277	-	-	-	103	-	58
Cryptomonas sp. 1 Ehr.	-	363	424	537	1,651	220	233
Cryptomonas sp. 2 Ehr.		-	-	-	-	352	-
Chlorophyta							
Actinastrum Hantzschii v. elongatum G.M. Sm.	-	-	-	-	-	-	-
A. Hantzschii v. fluviatile Schroed.	-	-	-	-	1,651	-	-
Ankistrodesmus convolutus Corda.	-	-	-	939	206	176	58
A. falcatus (Corda.) Ralfs	111	181	-	537	-	-	233
A. falcatus v. mirabilis (West & West) G.S. West	-	45	-	-	-	88	58
Arthrodesmus incus (Breb.) Hass.	-	-	-	-	-	-	-
Carteria multifilis (Fres.) Dill.	2,655	408	141	-	-	132	-
Cephalomonas granulata Higenb.	55	-	-	-	-	-	-
Characium ambiguum Hermann	-	-	-	-	-	-	-
Characium sp. 1 A. Braun	-	-	-	-	-	-	-
Chlamydomonas epiphytica G. M. Sm.	-	-	-	-	-	-	-
C. globosa Snow	553	272	-	402	-	-	641
Chlamydomonas sp. 1 Ehr.	-	272	-	402	206	44	291
Chlorogonium elongnatum Dang.	55	-	-	268	-	-	-
Closteriopsis longissima Lemm.	-	-	-	-	-	-	-
Closterium gracile Breb.	-	-	-	-	-	-	-
Coelastrum microporum Naeg.	-	-	-	-	-	-	-
C. proboscideum Bohlin.	-	-	-	-	-	-	-
C. reticulatum (Dang.) Senn.		-	-	-	-	-	-
C. sphaericum Naeg.		-	-	-	-	-	-
Cosmarium geometricum W. & G.S. West	-	-	-	-	-	-	-
Cosmarium sp. 1 Corda	-	-	-	-	-	-	-
Crucigenia fenestrata Schmid.	443	725	-	-	-	-	-
C. rectangularis (A. Br.) Gay	-	1,451	565	-	-	-	-
C. tetrapedia (Kirch.) West & West	-	-	-	-	-	-	-
Dictyosphaerium Ehrenbergianum Naeg.	-	635	-	-	-	132	-
D. pulchellum Wood	-	1,088	565	-	-	-	-
Golenkinia radiata (Chod.) Wille	-	181	-	268	-	-	-
Kirchneriella contorta (Schmid.) Bohl.	-	-	-	-	-	-	-
K. elongata G. M. Sm.	-	-	-	-	-	-	-

Date / Time	5/5/79 0900	6/15/79 1430	7/27/79 1430	8/24/79 1230	9/20/79 1330	10/17/79 1300	12/12/79 1700
Chlorophyta--Continued							
K. lunaris v. Dianae Bohl.	-	771	707	402	-	-	58
K. lunaris v. irregularis G. M. Schmid.	-	-	-	-	-	220	-
K. obesa (W. West) Schmid.	-	-	-	-	-	-	-
K. subsolitaria G. S. West	55	-	565	134	-	-	-
Lagerheimia quadriseta (Lemm.) G. M. Sm.	-	-	-	-	-	-	-
Micractinium pusillum Fres.	-	-	141	-	-	-	-
Nephrocytium limneticum (G. M. Sm.)	-	-	-	-	-	-	-
Oocystis Borgei Snow	-	-	-	-	-	-	-
O. lacustris Chod.	-	-	-	-	-	-	-
O. pusilla Hans.	-	-	-	-	-	-	-
O. pyriformis Prescott	-	-	-	-	-	-	-
Oocystis sp. Nageli	-	-	-	-	-	-	-
Pandorina morum (Muell.) Bory	1,106	468	-	-	-	-	-
Pediastrum biradiatum Meyen.	-	-	-	-	-	-	-
P. duplex v. gracilimum West & West	-	-	-	5,098	-	-	-
P. tetras v. tetraodon (Corda) Rabh.	-	-	-	-	-	-	-
Polyedriopsis spinulosa Schmid.	-	-	-	-	-	-	-
Radiofilum irregulare (Wille) Brunn.	-	725	-	-	-	-	-
Scenedesmus abundans (Kirch.) Chod.	-	-	-	-	-	-	-
S. bijuga (Turp.) Lagerh.	-	-	-	-	-	-	-
S. denticulatus Lagerh.	-	18.	848	1,610	-	526	-
S. dimorphus (Turp.) Kuetz	-	181	-	-	-	-	-
S. incrassatulus Bohl.	-	-	-	-	-	-	1,049
S. obliquus (Turp.) Kuetz	-	-	-	-	-	-	-
S. opoliensis v. contacta Prescott	-	-	-	-	-	-	-
S. quadricauda (Turp.) De Breb.	-	363	1,413	3,220	626	88	233
Scenedesmus sp. 1 Meyen	-	181	283	537	-	-	-
Schroederia setigera (Schroed.) Lemm.	-	-	141	-	-	-	-
Selenastrum gracile Reinsch.	-	-	-	-	-	-	-
S. minutum (Naeg.) Collins	-	-	-	-	-	-	-
Spondylosium planum (Wolle) W. & G. S. West	-	136	-	-	-	-	-
Staurastrum apiculatum Breb.	-	-	-	-	-	-	-
S. chaetoceros (Schroed.) G. M. Sm.	-	-	-	-	-	-	-
S. dilitatum Ehr.	-	-	-	-	-	-	-
S. gracile Ralfs	-	-	-	-	-	-	-
S. granulosum (Ehr.) Ralfs	-	-	-	-	-	-	-
S. paradoxum Meyen.	-	-	-	-	-	-	-
Tetraedron caudatum (Corda) Hans.	-	-	-	-	-	-	-
T. minimum (A. Braun) Hans.	-	-	-	-	-	-	-
T. regulare v. incus Teil.	-	-	-	-	-	-	-
T. trigonum (Naeg.) Hans.	-	-	-	-	-	-	-
T. trigonum v. gracile (Rein.) Det.	-	-	-	-	-	-	-
Tetrastrum glabrum (Roll) Ahl. and Tiff.		-	-	-	-	-	-
T. staurogeniaeforme (Schroed.) Lemm.	-	-	-	-	-	-	-
T. triacanthum Kors.	-	-	-	-	-	-	-
Thoracomonas phacotoides G. M. Sm.	-	-	-	-	-	-	-
Treubaria setigerum G. M. Sm.	-	-	-	-	-	-	-
T. varia Ahl. and Tiff.	-	-	-	-	-	-	-
Westella botryoides (W. West) De Wild.	-	1,853	-	-	-	-	-
unidentified coccoid sp.	-	-	-	-	-	-	-

Date Time	5/5/79 0900	6/15/79 1430	7/27/79 1430	8/24/79 1230	9/20/79 1330	10/17/79 1300	12/12/79 1700
Cyanophyta							
Agmenellum quadruplicatum Breb.	-	5,985	330,804	110,281	24,768	3,346	-
Anabaena sp. Bory	-	-	-	-	-	-	-
Anabaena sp. 1 Bory	-	-	-	-	-	-	-
Anabaena sp. 2 Bory	-	-	-	-	-	-	-
Anacystis cyanea Dr. and Daily	-	-	-	-	-	-	233
A. incerta Dr. and Daily	4,425	8,978	28,262	64,129	20,537	2,465	-
A. montana f. minor Dr. and Daily	-	-	-	-	-	-	-
A. thermalis Dr. and Daily	-	-	-	-	-	-	-
A. thermalis f. major (Lagerh.)	-	-	-	-	-	-	-
Anacystis sp. 1 Meneghini	608	-	283	4,025	-	-	700
Anacystis sp. 2 Meneghini	-	-	-	-	-	-	-
Aphanothece clathrata G. S. West	-	-	-	-	-	-	-
Aphanothece sp. 1 Nag.	-	-	3,109	-	-	-	291
Coccochloris peniocystis Dr. and Daily	-	-	-	-	-	-	-
Chroococcus sp. Nageli	-	-	-	-	-	-	-
Dactylococcopsis fascicularis Lemm.	-	-	-	671	-	176	-
Gomphosphaeria lacustris Chod.	-	272	-	268	413	176	350
Lyngbya contorta Lemm.	-	-	707	45,481	-	-	-
L. Diguetii Gomont	-	-	-	-	-	-	-
L. limnetica Lemm.	-	-	-	-	1,032	-	-
Lyngbya sp. 1 Agardh	-	-	-	7,916	-	-	-
Nostoc sp. Vaucher	-	-	-	-	-	-	-
Oscillatoria angustissima West & West	-	1,451	7,913	3,891	-	-	-
O. limnetica Lemm.	-	8,615	12,294	-	-	-	-
Palmogloea protuberans (Sm. & Sow.) Kuetz	-	-	-	-	-	-	-
Spirulina major Kuetz.	-	-	-	-	-	-	-
Euglenophyta							
Euglena sp. Ehr.	-	-	141	-	-	-	-
Trachelomonas varians (Lemm.) Defl.	-	-	-	-	-	-	-
T. volvocina Ehr.	-	-	-	134	-	44	-
Trachelomonas sp. Ehr.	-	-	-	-	-	-	-
Trachelomonas sp. 1 Ehr.	-	45	-	-	-	-	-
unidentified euglenoid sp. 1	-	-	141	-	-	-	-
Pyrrhophyta							
Glenodinium sp. Stein	-	-	-	268	-	-	-
Peridinium sp. Ehr.	-	-	-	-	103	-	-
Others							
unidentified phytoflagellates (<10u)	553	-	1,130	2,281	1,342	969	991
Total number of taxa observed	20	33	28	30	18	23	22
Total number of individuals per milliliter	12,777	39,309	393,686	257,[illegible]86	56,450	11,048	8,450

AD-A149 942 WATER QAALITY MANAGEMENT STUDIES WEST POINT LAKE 6/6
CHATTAHOOCHEE RIVER ALAB..(U) CORPS OF ENGINEERS MOBILE
AL MOBILE DISTRICT D B RADTKE ET AL. AUG 84
UNCLASSIFIED COESAM/PDEE-84/004 F/G 8/8 NL

END
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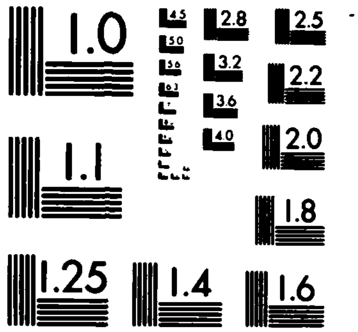


MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

CH-05A (02339190) Chattahoochee River at State Highway 701 near Abbottsford, Ga., 1978

[Standing crop in cells per milliliter; *, present in insufficient densities to establish accurate count]

Taxa	Date Time	4/12/78 1200	5/3/78 1030	6/1/78 1015	7/11/78 0945	8/15/78 1015	8/30/78 1500
Bacillariophyta							
Achnanthes Bory		-	-	-	220	570	1,500
Asterionella Hassall		-	250	-	-	-	-
Cyclotella Brebisson		120	3,600	850	670	1,100	610
Cymbella Agardh		-	-	-	-	-	-
Eunotia Ehrenberg		-	-	-	-	-	-
Fragilaria Lyngbye		-	42	70	2,200	*	-
Gomphonema Hustedt		-	-	-	-	-	-
Melosira Kutzing		220	1,200	-	-	-	-
Meridion Agardh		-	-	-	-	-	-
Navicula Bory		-	-	-	-	-	-
Nitzschia Hassall		-	550	70	-	-	-
Rhizosolenia Brightwell emend Ehrenberg		-	42	-	220	*	-
Synedra Ehrenberg		560	-	-	-	-	-
Tabellaria Ehrenberg		120	-	-	-	-	-
Chlorophyta							
Actinastrum Lagerheim		-	-	-	-	-	-
Ankistrodesmus Corda		770	1,200	210	-	-	-
Carteria Diesing		-	-	70	-	1,100	-
Characium A. Braun		-	-	-	-	-	-
Chlamydomonas Ehrenberg		120	1,700	140	670	-	610
Chlorogonium Ehrenberg		-	130	-	-	-	-
Chodatella Lemmermann		31	42	-	-	-	-
Closteriopsis Lemmermann		-	-	-	-	-	-
Coccomonas Stein		-	-	-	-	-	-
Coelastrum Nageli		250	-	-	-	-	-
Cosmarium Corda		-	-	-	*	-	-
Crucigenia Morren		-	-	-	1,800	-	-
Dichotomococcus Korshikov		-	-	920	-	-	-
Dictyosphaerium Nageli		-	250	-	670	-	-
Dysmorphococcus Takeda		-	-	-	-	-	310
Elakatothrix Wille		-	-	-	-	-	-
Euastrum Ehrenberg		-	-	-	-	-	-
Franceia Lemmermann		-	-	-	-	-	-
Gloeoactinium G. M. Smith		1,100	-	-	-	-	-
Gloeocystis Nageli		-	-	-	-	-	-
Golenkinia Chodat		-	-	-	-	-	-
Gonium Muller		-	-	1,100	-	-	-
Kirchneriella Schmidle		-	420	280	-	-	-
Micractinium Fresenius		-	-	-	-	570	-
Mougeotia Agardh		-	-	-	-	-	-
Oocystis Nageli		-	84	-	-	570	310
Pandorina Bory		-	800	-	-	-	-
Pediastrum Meyer		-	-	-	-	-	-
Pteromonas Seligo		-	84	-	-	-	-
Scenedesmus Meyen		710	340	210	2,200	3,400	310
Selenastrum Reinsch		-	-	1,200	450	-	-
Schroederia Lemmermann		-	-	210	220	-	-
Spermatozoopsis Korshikov		-	-	-	-	-	-
Sphaerocystis Chodat		-	-	-	-	*	-
Staurastrum Meyen		-	-	-	-	-	-

Taxa / Date / Time	4/12/78 1200	5/3/78 1030	6/1/78 1015	7/11/78 0945	8/15/78 1015	8/30/78 1500
Chlorophyta--Continued						
Tetraedron Kutzing	31	84	-	-	-	-
Tetrastrum Chodat	-	-	-	-	-	-
Treubaria Bernard	-	84	-	-	-	-
Westella de Wildermann	-	-	-	-	-	-
Wislouchiella Skvortzow	-	-	-	-	-	-
Volvox Linnaeus	-	-	-	-	-	-
Chrysophyta						
Centritractus Lemmermann	-	-	-	220	-	-
Chrysococcus Klebs	-	-	-	-	-	-
Chrysosphaerella Lauterborn	-	-	-	-	-	-
Dinobryon Ehrenberg	-	-	-	-	-	-
Mallomonas Perty	-	-	-	-	-	-
Ochromonas Wysotski	-	-	-	-	-	-
Synura Ehrenberg	-	130	-	-	-	-
Cryptophyta						
Chroomonas Hansgirg	-	500	210	-	-	-
Cryptomonas Ehrenberg	530	630	140	450	1,100	-
Cryptomonidales	-	-	-	-	-	610
Cyanophyta						
Agmenellum quadruplicatum (Meneghini) Brebisson	-	32,000	40,000	-	59,000	-
Agmenellum Brebisson	9,600	-	-	900	-	-
Anabaena Bory		-	-	-	16,000	-
Anacystis cyanea Drouet and Daily	-	-	-	-	-	-
A. incerta (Lemmermann) Drouet and Daily	-	-	75,000	37,000	41,000	52,000
Anacystis Meneghini	-	3,400	-	3,600	48,000	-
Aphanizomenon Morren	-	-	-	-	5,700	-
Coccochloris Sprengel	-	1,100	-	-	-	-
Hormogonales		840				
Lyngbya Agardh	-	-	-	24,000	23,000	29,000
Oscillatoria Vaucher	4,500	3,800	5,600	9,200	11,000	-
Phormidium Kutzing	-	-	-	-	-	-
Raphidiopsis Fritsch and Rich	-	-	-	45,000	64,000	79,000
Euglenophyta						
Euglena Ehrenberg	-	-	-	-	-	-
Lepocynclis Perty	-	-	-	-	-	-
Trachelomonas Ehrenberg	120	-	-	-	-	-
Pyrrophyta						
Glenodinium Stein	-	-	-	220	-	-
Gymnodinium Kofoid and Swezy	-	-	-	-	-	-
Peridinium Ehrenberg	31	-	-	-	-	-
Total number of taxa observed	16	26	17	20	17	10
Total number of cells per milliliter	18,813	53,302	126,280	129,910	276,110	164,260

CH-05A (02339190) Chattahoochee River at State Highway 701 near Abbottsford, Ga., 1979

[Standing crop in cells per milliliter]

Date / Time	5/4/79 1230	6/15/79 1200	7/27/79 1245	8/24/79 1030	9/20/79 1630	10/17/79 1500	12/13/79 1000
Bacillariophyta							
Achnanthes lanceolata Breb. ex Kutz.	-	-	-	-	-	-	-
A. minutissima Kutz.	-	-	-	-	-	-	-
Asterionella formosa Hass.	375	-	-	-	-	-	-
Cocconeis diminuta Pant.	-	-	-	-	-	-	-
C. placentula Ehr.	-	-	-	-	-	-	-
C. placentula v. euglypta (Ehr.) Cl.	-	-	-	-	-	-	-
Cyclotella atomus Hust.	1,178	270	188	533	.	921	719
C. glomerata Bach.	-	1,080	941	267	.9	276	276
C. Meneghiniana Kutz.	54	-	-	-	-	92	-
C. stelligera Cl. and Grun.	268	270	-	-	-	-	-
Cymbella ventricosa Kutz.	-	-	-	-	-	-	-
Eunotia curvata (Kutz.) Lagerst	-	-	.	-	-	-	-
E. pectinalis (O.F. Mull.) Rabh.	-	-	-	-	-	-	-
Fragilaria bicapitata A. Mayer	-	-	-	-	110	-	-
F. brevistriata Grun.	.	-	-	-	-	-	-
F. crotonensis Kitton	-	-	-	-	-	-	-
F. intermedia Grun.	-	-	-	-	-	-	-
F. vaucheriae (Kutz.) Peters	-	90	282	133	330	368	111
Fragilaria sp. 1 Lyngb.	214	-	-	-	-	-	-
Frustulia rhomboides (Ehr.) Det.	-	-	-	-	-	-	-
Gomphonema angustatum v. productum Grun.	-	-	-	-	-	-	-
G. gracile Ehr. emend V.H.	-	-	-	-	-	-	-
G. parvulum (Kutz.)	-	-	-	-	-	-	-
Melosira distans (Ehr.) Kutz.	8,137	180	-	-	-	-	-
M. granulata (Ehr.) Ralfs	268	-	753	-	220	-	-
M. granulata v. angustissima Mull.	-	270	-	-	-	-	-
M. islandica Mull.	-	-	-	-	-	460	-
M. italica (Ehr.) Kutz.	-	-	-	-	-	-	-
M. varians C.A. Ag.	-	-	-	-	-	-	-
Navicula bicapitellata Hust.	-	-	-	-	-	-	-
N. confervacese (Kutz.) Grun.	-	-	-	-	-	-	-
N. cryptocephala Kutz.	-	-	-	-	-	-	-
N. exigua Greg. ex Grun.	-	-	-	-	-	-	-
N. hungarica Grun.	-	-	-	-	-	-	-
N. pupula Kutz.	-	-	-	-	-	-	-
N. rhyncocephala Kutz.	-	-	-	-	-	-	-
N. tripunctata (Mull.) Bory.	-	-	-	-	-	-	-
N. viridula v. rostellata (Kutz.) Cl.	-	-	-	-	-	-	-
Nitzschia acicularis W. Sm.	214	90	188	-	-	184	-
N. filiformis (W. Sm.) Hust.	-	-	-	-	-	-	-
N. holsatica Hust.	-	-	-	-	-	-	-
N. palea (Kutz) W. Sm.	107	-	-	-	110	-	-
Opephora? sp. Petit	-	-	-	-	-	-	-
Pinnularia brebissonii v. diminuta (Grun.) Cl.	-	-	-	-	-	-	-
Pinnularia sp. 1 Ehr.	-	-	-	-	-	-	-
Rhizosolenia eriensis H.L. Sm.	-	-	188	-	-	-	-
Surirella angustata Kutz.	-	-	-	-	-	-	-
S. ovata Kutz.	-	-	-	-	-	-	-
S. ovata v. pinnata (W. Sm.)	-	-	-	-	-	-	-
Synedra actinastroides Lemm.	-	-	-	-	-	-	-

[Standing crop in cells per milliliter]

Date Time	5/4/79 1230	6/15/79 1200	7/27/79 1245	8/24/79 1030	9/20/79 1630	10/17/79 1500	12/13/79 1000
Bacillariophyta--Continued							
S. acus Kutz.		-	-	133	-	92	-
S. delicatissima W. Sm.	-	-	282	-	-	-	-
S. rumpens Kutz.	-	-	-	-	-	-	-
S. ulna (Nitz.) Ehr.	-	-	-	-	-	-	-
Synedra sp. Ehr.	107	-	-	-	-	-	-
Synedra sp. 1 Ehr.	-	-	-	-	-	-	-
Tabellaria fenestrata (Lyngb.) Kutz.	-	-	-	-	-	-	-
Chrysophyta							
Dinobryon sociale Ehr.	-	-	-	-	-	-	-
Cryptophyta							
Chroomonas sp. 1 Hans.	1,713	1,440	188	2,666	2,636	4,05	2,487
Cryptomonas ovata Ehr.	642	-	-	-	-	184	55
Cryptomonas sp. 1 Ehr.	-	810	94	533	1,538	1,749	111
Cryptomonas sp. 2 Ehr.	-	-	-	-	-	-	-
Chlorophyta							
Actinastrum Hantzschii v. elongatum G.M. Sm.	-	-	376	-	-	-	-
A. Hantzschii v. fluviatile Schroed.	-	-	-	-	-	-	-
Ankistrodesmus convolutus Corda.	54	-	-	-	-	736	-
A. falcatus (Corda.) Ralfs	749	90	188	-	-	184	221
A. falcatus v. mirabilis (West & West) G.S. West	-	90	-	-	-	92	-
Arthrodesmus incus (Breb.) Hass.	-	-	-	-	-	-	-
Carteria multifilis (Fres.) Dill.	642	540	-	133	-	-	608
Cephalomonas granulata Higenb.	-	-	-	-	-	-	-
Characium ambiguum Hermann	-	-	-	-	-	-	-
Characium sp. 1 A. Braun	-	-	-	-	-	-	-
Chlamydomonas epiphytica G. M. Sm.	-	-	-	-	-	-	-
C. globosa Snow	428	270	-	-	-	276	55
Chlamydomonas sp. 1 Ehr.	-	540	188	133	110	184	55
Chlorogonium elongnatum Dang.	-	-	-	-	-	-	-
Closteriopsis longissima Lemm.	-	-	-	-	-	-	-
Closterium gracile Breb.	-	-	-	-	-	-	-
Coelastrum microporum Naeg.	-	-	-	-	-	-	-
C. proboscideum Bohlin.	-	-	-	-	-	-	-
C. reticulatum (Dang.) Senn.	-	-	-	-	-	-	-
C. sphaericum Naeg.	-	360	-	-	-	-	-
Cosmarium geometricum W. & G.S. West	-	-	94	-	-	-	-
Cosmarium sp. 1 Corda	-	-	-	-	-	-	-
Crucigenia fenestrata Schmid.	-	-	-	-	-	-	221
C. rectangularis (A. Br.) Gay	214	540	-	-	-	-	-
C. tetrapedia (Kirch.) West & West	-	-	-	-	-	368	-
Dictyosphaerium Ehrenbergianum Naeg.	-	630	-	-	439	-	-
D. pulchellum Wood	214	-	-	2,93[illegible]	-	-	-
Golenkinia radiata (Chod.) Wille	-	180	94	133	-	-	-
Kirchneriella contorta (Schmid.) Bohl.	-	-	-	-	-	-	-
K. elongata G. M. Sm.	-	-	-	-	-	-	-

Date Time	5/4/79 1230	6/15/79 1200	7/27/79 1245	8/24/79 1030	9/20/79 1630	10/17/79 1500	12/13/79 1000
Chlorophyta--Continued							
K. lunaris v. Dianae Bohl.	-	810	471	133	110	-	-
K. lunaris v. irregularis G. M. Schmid.	-	-	-	-	439	92	-
K. obesa (W. West) Schmid.	-	-	-	-	-	-	-
K. subsolitaria G. S. West	-	-	-	267	-	-	-
Lagerheimia quadriseta (Lemm.) G. M. Sm.	-	-	-	-	-	-	-
Micractinium pusillum Fres.	-	-	-	-	-	-	221
Nephrocytium limneticum (G. M. Sm.)	-	-	-	-	-	-	-
Oocystis Borgei Snow	-	-	-	-	-	-	-
O. lacustris Chod.	-	-	-	-		-	-
O. pusilla Hans.	-	-	-	-		-	-
O. pyriformis Prescott	-	-	-	-	-	92	-
Oocystis sp. Nageli	-	-	-	-	-	-	-
Pandorina morum (Muell.) Bory	2,784	1,080	-	-	-	-	-
Pediastrum biradiatum Meyen.	-	-	-	-	-	-	-
P. duplex v. gracilimum West & West	-	-	-	-	-	-	-
P. tetras v. tetraodon (Corda) Rabh.	-	-	-	-	-	368	-
Polyedriopsis spinulosa Schmid.	-	-	-	-	-	-	-
Radiofilum irregulare (Wille) Brunn.	-	-	-	-	-	-	-
Scenedesmus abundans (Kirch.) Chod.	-	-	-	-	-	368	-
S. bijuga (Turp.) Lagerh.	-	-	-	-	-	-	-
S. denticulatus Lagerh.	-	90	376	533	439	-	111
S. dimorphus (Turp.) Kuetz	-	-	-	-	-	-	-
S. incrassatulus Bohl.	-	-	-	-	-	-	-
S. obliquus (Turp.) Kuetz	-	-	-	-	-	-	111
S. opoliensis v. contacta Prescott	-	-	-	-	-	-	-
S. quadricauda (Turp.) De Breb.	-	1,620	753	1,866	879	1,841	-
Scenedesmus sp. 1 Meyen	482	-	-	-	-	-	-
Schroederia setigera (Schroed.) Lemm.	-	-	-	133	-	-	-
Selenastrum gracile Reinsch.	-	90	-	-	-	-	-
Staurastrum apiculatum Breb.	-	-	-	-	-	-	-
S. chaetoceros (Schroed.) G. M. Sm.	-	-	-	-	-	-	-
S. dilitatum Ehr.	-	-	-	-	-	-	-
S. gracile Ralfs	-	-	-	-	-	-	-
S. granulosum (Ehr.) Ralfs	-	-	-	-	-	-	-
S. paradoxum Meyen.	-	-	-	-	-	-	-
Tetraedron caudatum (Corda) Hans.	-	-	-	-	-	-	-
T. minimum (A. Braun) Hans.	-	-	-	-	-	-	-
T. regulare v. incus Teil.	-	-	-	-	-	92	-
T. trigonum (Naeg.) Hans.	-	-	94	-	-	-	-
T. trigonum v. gracile (Rein.) Det.	-	-	-	-	-	-	-
Tetrastrum glabrum (Roll) Ahl. and Tiff.	-	-	-	-	-	-	-
T. staurogeniaeforme (Schroed.) Lemm.	-	-	-	-	-	368	-
T. triacanthum Kors.	-	-	-	-	-	-	-
Thoracomonas phacotoides G. M. Sm.	321	-	-	-	-	-	-
Treubaria setigerum G. M. Sm.	-	-	-	133	-	184	-
. varia Ahl. and Tiff.	-	-	-	-	-	-	-
Westella botryoides (W. West) De Wild.	-	2,970	-	-	-	368	-
unidentified coccoid sp.	-	-	-	-	-	-	-

Date / Time	5/4/79 1230	6/15/79 1200	7/27/79 1245	8/24/79 1030	9/20/79 1630	10/17/79 1500	12/13/79 1000
Cyanophyta							
Agmenellum quadruplicatum Breb.	642	47,525	87,797	59,727	16,365	3,682	-
Anabaena sp. Bory	-	-	-	-	-	-	-
Anabaena sp. 1 Bory	-	4,951	-	667	-	-	-
Anabaena sp. 2 Bory	-	-	-	-	-	-	-
Anacystis cyanea Dr. and Daily	-	-	-	-	-	-	995
A. incerta Dr. and Daily	-	32,674	95,042	73,725	18,562	18,320	-
A. montana f. minor Dr. and Daily	-	-	-	-	-	-	-
A. thermalis Dr. and Daily	-	-	-	-	-	-	-
A. thermalis f. major (Lagerh.)	-	-	-	-	-	-	-
Anacystis sp. 1 Meneghini	-	1,710	4,611	-	-	-	-
Anacystis sp. 2 Meneghini	-	-	-	-	-	-	-
Aphanothece clathrata G. S. West	-	-	-	-	-	-	-
Aphanothece sp. 1 Nag.	-	-	-	-	-	-	-
Coccochloris peniocystis Dr. and Daily	-	-	-	-	-	-	-
Chroococcus sp. Nageli	-	-	-	-	-	-	-
Dactylococcopsis fascicularis Lemm.	-	-	-	-	-	-	-
Chod.	-	2,340	-	-	-	-	-
Lyngbya contorta Lemm.	-	-	1,506	-	-	-	-
L. Diguetii Gomont	-	-	-	-	-	-	-
L. limnetica Lemm.	-	-	-	3,066	3,954	1,565	-
Lyngbya sp. 1 Agardh	-	-	1,506	-	-	-	-
Nostoc sp. Vaucher	-	-	-	-	-	-	-
Oscillatoria angustissima West & West	-	6,841	10,351	11,732	17,573	-	553
O. limnetica Lemm.	535	3,600	9,598	9,199	-	-	-
Palmogloea protuberans (Sm. & Sow.) Kuetz	-	-	-	-	-	-	-
Spirulina major Kuetz.	-	-	-	-	-	-	-
Euglenophyta							
Euglena sp. Ehr.	-	-	-	-	-	-	-
Trachelomonas varians (Lemm.) Defl.	-	-	-	-	-	92	-
T. volvocina Ehr.	-	-	-	-	-	184	-
Trachelomonas sp. Ehr.	-	-	-	-	-	-	-
Trachelomonas sp. 1 Ehr.	-	-	-	-	-	-	-
unidentified euglenoid sp. 1	-	-	-	-	-	-	-
Pyrrhophyta							
Glenodinium sp. Stein	-	-	-	-	-	92	-
Peridinium sp. Ehr.	-	-	-	-	-	-	-
Others							
unidentified phytoflagellates (<10μ)	2,355	130	753	1,333	1,098	644	884
Total number of taxa observed	24	31	26	23	18	32	14
Total number of individuals per milliliter	22,697	114,171	216,902	170,111	65,461	38,569	7,794

CH-03C (02339388) Chattahoochee River below Coffer Dam, above West Point Dam, 1978

[Standing crop in cells per milliliter; *, present in insufficient densities to establish accurate count]

Taxa	Date / Time	4/10/78 1645	5/14/78 1115	5/31/78 1015	7/10/78 1315	8/14/78 0930	8/30/78 1145
Bacillariophyta							
Achnanthes Bory		-	-	-	-	1,600	5,900
Asterionella Hassall		-	-	-	-	-	-
Cyclotella Brebisson		340	620	97	1,700	92	840
Cymbella Agardh		-	-	-	-	-	-
Eunotia Ehrenberg		-	-	-	-	-	-
Fragilaria Lyngbye		-	15	97	2,000	370	*
Gomphonema Hustedt		-	-	-	-	-	-
Melosira Kutzing		-	300	*	-	-	-
Meridion Agardh		-	-	-	-	-	-
Navicula Bory		-	-	-	-	-	-
Nitzschia Hassall		-	140	-	-	92	-
Rhizosolenia Brightwell Ehrenberg emend		-	-	97	400	92	-
Synedra Ehrenberg		6,400	-	-	-	-	-
Tabellaria Ehrenberg		1,400	-	-	-	-	-
Chlorophyta							
Actinastrum Lagerheim		-	-	-	-	-	-
Ankistrodesmus Corda		5,400	440	630	99	-	-
Carteria Diesing		-	-	-	-	270	*
Characium A. Braun		-	-	-	-	-	-
Chlamydomonas Ehrenberg		1,200	-	97	92	-	-
Chlorogonium Ehrenberg		-	-	-	-	-	-
Chodatella Lemmermann		340	15	-	-	-	-
Closteriopsis Lemmermann		-	-	-	-	-	-
Coccomonas Stein		-	-	-	-	-	-
Coelastrum Nageli		-	75	780	400	-	-
Cosmarium Corda		-	-	48	2,900	180	420
Crucigenia Morren		680	-	680	*	-	-
Dichotomococcus Korshikov		-	120	-	-	-	-
Dictyosphaerium Nageli		-	-	-	-	-	420
Dysmorphococcus Takeda		-	-	-	-	-	-
Elakatothrix Wille		-	-	-	-	-	-
Euastrum Ehrenberg		-	-	-	-	-	-
Franceia Lemmermann		-	-	-	99	92	-
Gloeoactinium G. M. Smith		-	-	-	-	-	-
Gloeocystis Nageli		6,600	-	-	-	-	-
Golenkinia Chodat		-	-	-	99	-	*
Gonium Muller		-	-	-	-	-	-
Kirchneriella Schmidle		2,500	45	97	99	-	-
Micractinium Fresenius		-	-	*	-	180	-
Mougeotia Agardh		-	-	-	-	-	-
Oocystis Nageli		-	91	150	-	-	-
Pandorina Bory		-	-	-	-	1,500	-
Pediastrum Meyer		-	-	97	-	-	-
Pteromonas Seligo		-	-	-	-	-	-
Scenedesmus Meyen		1,700	230	680	200	*	-
Selenastrum Reinsch		-	-	970	700	-	-
Schroederia Lemmermann		-	-	-	-	-	-
Spermatozoopsis Korshikov		-	-	-	-	-	-
Sphaerocystis Chodat		-	-	-	-	-	-
Staurastrum Meyen		-	-	-	99	92	420

Taxa / Date / Time	4/10/78 1645	5/14/78 1115	5/31/78 1015	7/10/78 1315	8/14/78 0930	8/30/78 1145
Chlorophyta--Continued						
Tetraedron Kutzing	-	30	-	-	-	-
Tetrastrum Chodat	-	-	-	-	-	-
Treubaria Bernard	510	30	48	-	-	-
Westella de Wildermann	-	-	-	-	-	-
Wislouchiella Skvortzow	-	-	-	-	-	-
Volvox Linnaeus	-	-	-	-	-	-
Chrysophyta						
Centritractus Lemmermann	-	-	-	-	-	-
Chrysococcus Klebs	-	-	-	-	-	-
Chrysosphaerella Lauterborn	-	-	480	-	-	-
Dinobryon Ehrenberg	-	-	-	-	-	-
Mallomonas Perty	-	-	-	-	-	-
Ochromonas Wysotski	680	-	-	-	-	-
Synura Ehrenberg	-	-	-	-	-	-
Cryptophyta						
Chroomonas Hansgirg	-	840	150	-	-	-
Cryptomonas Ehrenberg	340	1,900	48	200	270	-
Cyanophyta						
Agmenellum quadruplicatum (Meneghini) Brebisson	-	330	-	-	-	-
Agmenellum Brebisson	-	-	390	-	-	-
Anabaena Bory	-	-	-	-	1,400	*
Anacystis cyanea Drouet and Daily	-	-	24,000	-	-	-
A. incerta (Lemmermann) Drouet and Daily	-	-	91,000	33,000	15,000	-
Anacystis Meneghini	6,800	630	-	2,400	1,800	4,200
Aphanizomenon Morren	-	-	-	-	1,600	-
Coccochloris Sprengel	-	-	-	-	-	-
Lyngbya Agardh	-	-	-	6,600	180	4,200
Oscillatoria Vaucher	24,000	-	2,600	-	4,400	-
Phormidium Kutzing	-	-	-	-	-	-
Raphidiopsis Fritsch and Rich	-	-	-	25,000	21,000	68,000
Euglenophyta						
Euglena Ehrenberg	170	-	-	-	-	-
Lepocynclis Perty	-	-	-	-	-	*
Trachelomonas Ehrenberg	-	15	97	-	-	-
Pyrrophyta						
Glenodinium Stein	-	-	150	-	-	-
Gymnodinium Kofoid and Swezy	-	-	-	-	-	-
Peridinium Ehrenberg	-	-	48	200	-	-
Total number of taxa observed	16	18	26	20	19	13
Total number of cells per milliliter	59,060	5,866	123,531	76,287	50,210	84,400

[Standing crop in cells per milliliter]

Date Time	5/4/79 1030	6/15/79 0915	7/27/79 1030	8/24/79 0900	9/20/79 1530	10/17/79 1600	12/11/79 1330
Bacillariophyta							
Achnanthes lanceolata Breb. ex Kutz.	-	-	-	-	-	-	-
A. minutissima Kutz.	-	-	-	-	-	-	-
Asterionella formosa Hass.	414	-	-	-	-	-	-
Cocconeis diminuta Pant.	-	-	-	-	-	-	-
C. placentula Ehr.	-	-	-	-	-	-	-
C. placentula v. euglypta (Ehr.) CL.	-	-	-	125	-	-	-
Cyclotella atomus Hust.	446	389	73	375	[illegible]	350	1,195
C. glomerata Bach.	161	194	-	-	[illegible]	350	1,309
C. Meneghiniana Kutz.	-	-	-	125	-	-	57
C. stelligera CL. and Grun.	223	194	220	-	-	-	-
Cymbella ventricosa Kutz.	-	-	-	-	-	-	-
Eunotia curvata (Kutz.) Logerst	-	-	-	-	-	-	-
E. pectinalis (O.F. Mull.) Rabh.	-	-	-	-	-	-	-
Fragilaria bicapitata A. Mayer	-	-	-	-	396	-	-
F. brevistriata Grun.	-	-	-	-	-	-	-
F. crotonensis Kitton	-	259	146	-	-	-	-
F. intermedia Grun.	-	-	-	-	-	-	-
F. vaucheriae (Kutz.) Peters	-	-	-	-	-	350	-
Fragilaria sp. 1 Lyngb.	126	-	-	-	-	-	-
Frustulia rhomboides (Ehr.) Det.	-	-	-	-	-	-	-
Gomphonema angustatum v. productum Grun.	-	-	-	-	-	-	-
G. gracile Ehr. emend V.H.	-	-	-	-	-	-	-
G. parvulum (Kutz.)	-	-	-	-	-	-	-
Melosira distans (Ehr.) Kutz.	16,106	194	73	-	-	175	57
M. granulata (Ehr.) Ralfs	-	-	-	-	-	-	-
M. granulata v. angustissima Mull.	-	-	293	-	-	-	-
M. islandica Mull.	-	-	-	-	-	-	-
M. italica (Ehr.) Kutz.	-	-	-	-	-	-	-
M. varians C.A. Ag.	-	-	-	-	-	-	-
Navicula bicapitellata Hust.	-	-	-	-	-	-	-
N. confervacea (Kutz.) Grun.	-	-	-	-	-	-	-
N. cryptocephala Kutz.	-	-	-	-	-	-	-
N. exigua Greg. ex Grun.	-	-	-	-	-	-	-
N. hungarica Grun.	-	-	-	-	-	-	-
N. pupula Kutz.	-	-	-	-	-	-	-
N. rhyncocephala Kutz.	-	-	-	-	-	-	-
N. tripunctata (Mull.) Bory.	-	-	-	-	-	-	-
N. viridula v. rostellata (Kutz.) CL.	-	-	-	-	-	-	-
Nitzschia acicularis W. Sm.	32	-	146	-	-	262	-
N. filiformis (W. Sm.) Hust.	-	-	-	-	-	-	-
N. holsatica Hust.	-	-	-	-	-	-	-
N. palea (Kutz) W. Sm.	-	-	-	-	-	-	-
Opephora? sp. Petit	-	-	-	-	-	-	-
Pinnularia brebissonii v. diminuta (Grun.) CL.	-	-	-	-	-	-	-
Pinnularia sp. 1 Ehr.	-	-	-	-	-	-	-
Rhizosolenia eriensis H.L. Sm.	-	-	-	-	-	-	-
Surirella angustata Kutz.	-	-	-	-	-	-	-
S. ovata Kutz.	-	-	-	-	-	-	-
S. ovata v. pinnata (W. Sm.)	-	-	-	-	-	-	-
Synedra actinastroides Lemm.	-	-	-	-	528	-	-

Date Time	5/4/79 1030	6/15/79 0915	7/27/79 1030	8/24/79 0900	9/20/79 1530	10/17/79 1600	12/11/79 1330
Bacillariophyta--Continued							
S. acus Kutz.	-	-	-	626	-	87	-
S. delicatissima W. Sm.	-	-	-	-	-	-	-
S. rumpens Kutz.	-	-	1,171	-	-	-	-
S. ulna (Nitz.) Ehr.	-	-	-	-	-	-	-
Synedra sp. Ehr.	-	-	-	-	-	-	-
Synedra sp. 1 Ehr.	-	-	-	-	-	-	-
Tabellaria fenestrata (Lyngb.) Kutz.	-	324	293	-	-	-	-
unidentified centric diatom	-	-	293	-	-	-	-
Chrysophyta							
Dinobryon sociale Ehr.	-	-	-	-	-	-	-
Cryptophyta							
Chroomonas sp. 1 Hans.	382	1,166	1,683	1,126	1,057	2,797	1,423
Cryptomonas ovata Ehr.	159	130	73	-	-	350	-
Cryptomonas sp. 1 Ehr.	-	842	146	1,125	132	262	-
Cryptomonas sp. 2 Ehr.	-	-	-	-	-	-	-
Chlorophyta							
Actinastrum Hantzschii	127	-	-	-	-	-	-
v. elongatum G.M. Sm.	-	-	-	-	-	-	-
A. Hantzschii v. fluviatile Schroed.	-	-	-	-	-	-	-
Ankistrodesmus convolutus Corda.	32	-	-	-	-	437	-
A. falcatus (Corda.) Ralfs	286	-	-	-	-	-	-
A. falcatus v. mirabilis (West & West) G.S. West	32	-	-	-	-	-	-
Arthrodesmus incus (Breb.) Hass.	-	-	-	-	-	-	-
Carteria multifilis (Fres.) Dill.	286	-	-	-	-	262	-
Cephalomonas granulata Higenb.	-	-	-	-	-	-	-
Characium ambiguum Hermann	-	-	-	-	-	-	-
Characium sp. 1 A. Braun	-	-	-	-	-	-	-
Chlamydomonas epiphytica G. M. Sm.	-	-	-	-	-	-	-
C. globosa Snow	32	65	-	-	-	-	114
Chlamydomonas sp. 1 Ehr.	-	-	366	125	396	-	57
Chlorogonium elongnatum Dang.	-	-	-	-	-	87	-
Closteriopsis longissima Lemm.	-	-	-	-	-	-	-
Closterium gracile Breb.	-	-	-	-	-	-	-
Coelastrum microporum Naeg.	-	-	-	-	-	-	-
C. proboscideum Bohlin.	-	-	-	501	-	-	-
C. reticulatum (Dang.) Senn.	-	-	-	-	-	-	-
C. sphaericum Naeg.	-	4,663	-	-	-	-	-
Cosmarium geometricum W. & G.S. West	-	-	-	-	-	-	-
Cosmarium sp. 1 Corda	-	-	-	125	132	-	-
Crucigenia fenestrata Schmid.	-	-	-	-	-	-	-
C. rectangularis (A. Br.) Gay	-	-	-	-	-	-	-
C. tetrapedia (Kirch.) West & West	127	-	-	-	-	-	-
Dictyosphaerium Ehrenbergianum Naeg.	-	-	-	-	-	-	-
D. pulchellum Wood	-	-	-	1,001	528	-	-
Golenkinia radiata (Chod.) Wille	-	259	73	125	-	87	-
Kirchneriella contorta (Schmid.) Bohl.	159	-	-	125	-	-	-
K. elongata G. M. Sm.	-	-	-	-	-	-	-

Date Time	5/4/79 1030	6/15/79 0915	7/27/79 1030	8/24/79 0900	9/20/79 1530	10/17/79 1600	12/11/79 1330
Chlorophyta--Continued							
K. lunaris v. Dianae Bohl.	-	194	73	-	-	-	-
K. lunaris v. irregularis G. M. Schmid.	-	-	-	-	-	350	-
K. obesa (W. West) Schmid.	-	-	-	-	132	-	-
K. subsolitaria G. S. West	-	-	366	-	660	-	-
Lagerheimia quadriseta (Lemm.) G. M. Sm.	-	-	-	-	-	-	-
Micractinium pusillum Fres.	-	-	-	125	[illegible]	350	569
Nephrocytium limneticum (G. M. Sm.)	-	-	-	-	-	-	-
Oocystis Borgei Snow	-	-	-	-	-	-	-
O. lacustris Chod.	-	-	-	-	-	-	-
O. pusilla Hans.	-	-	-	-	-	-	-
O. pyriformis Prescott	-	-	-	-	-	-	-
Oocystis sp. Nageli	-	-	-	-	-	-	-
Pandorina morum (Muell.) Bory	-	-	-	2,002	-	-	-
Pediastrum biradiatum Meyen.	-	-	-	-	-	-	-
P. duplex v. gracilimum West & West	-	-	-	-	-	-	-
P. tetras v. tetraodon (Corda) Rabh.	-	-	-	-	-	-	-
Polyedriopsis spinulosa Schmid.	-	-	-	-	-	-	-
Radiofilum irregulare (Wille) Brunn.	-	-	-	-	-	-	-
Scenedesmus abundans (Kirch.) Chod.	-	-	-	-	-	262	-
S. bijuga (Turp.) Lagerh.	-	-	-	-	-	-	-
S. denticulatus Lagerh.	-	259	-	250	792	-	-
S. dimorphus (Turp.) Kuetz	-	-	-	-	-	-	-
S. incrassatulus Bohl.	-	-	-	-	-	-	-
S. obliquus (Turp.) Kuetz	-	-	-	-	-	-	-
S. opoliensis v. contacta Prescott	-	-	-	-	-	-	-
S. quadricauda (Turp.) De Breb.	-	842	-	501	528	350	57
Scenedesmus sp. 1 Meyen	255	-	-	-	-	-	114
Schroederia setigera (Schroed.) Lemm.	-	-	-	-	-	87	-
Selenastrum gracile Reinsch.	-	-	-	-	-	-	-
S. minutum (naeg.) Collins	-	-	-	-	-	-	-
Spondylosium planum (Wolle) W. & G. S. West	-	-	-	-	-	-	-
Staurastrum apiculatum Breb.	-	-	146	-	-	-	-
S. chaetoceros (Schroed.) G. M. Sm.	-	-	-	-	132	-	-
S. dilitatum Ehr.	-	-	220	-	-	-	-
S. gracile Ralfs	-	-	-	-	-	-	-
S. granulosum (Ehr.) Ralfs	-	-	-	-	-	-	-
S. paradoxum Meyen.	-	65	-	-	-	-	-
Tetraedron caudatum (Corda) Hans.	-	-	-	-	-	-	-
T. minimum (A. Braun) Hans.	-	-	73	125	132	-	-
T. regulare v. incus Teil.	-	-	-	-	-	87	-
T. trigonum (Naeg.) Hans.	-	-	-	-	-	-	-
T. trigonum v. gracile (Rein.) Det.	-	-	-	-	132	-	-
Tetrastrum glabrum (Roll) Ahl. and Tiff.	-	-	-	-	-	350	-
T. staurogeniaeforme (Schroed.) Lemm.	127	-	-	-	-	-	-
T. triacanthum Kors.	-	-	-	-	-	-	-
Thoracomonas phacotoides G. M. Sm.	-	-	-	-	-	-	-
Treubaria setigerum G. M. Sm.	-	-	-	-	-	-	-
T. varia Ahl. and Tiff.	-	-	-	-	-	-	-
Westella botryoides (W. West) De Wild.	-	518	-	-	-	350	-
unidentified coccoid sp.							

Date Time	5/4/79 1030	6/15/79 0915	7/27/79 1030	8/24/79 0900	9/20/79 1530	10/17/79 1600	12/11/79 1330
Cyanophyta							
Agmenellum quadruplicatum Breb.	-	-	-	2,127	5,283	5,595	-
Anabaena sp. Bory							
Anabaena sp. 1 Bory	-	1,813	7,537	-	-	-	-
Anabaena sp. 2 Bory	-	2,785	-	-	-	-	-
Anacystis cyanea Dr. and Daily	350	-	-	-	-	-	1,366
A. incerta Dr. and Daily	255	53,557	18,586	41,293	4,018	19,319	-
A. montana f. minor Dr. and Daily	-	-	-	5,255	-	-	-
A. thermalis Dr. and Daily	-	-	-	-	-	-	-
A. thermalis f. major (Lagerh.)	-	-	-	-	-	-	-
Anacystis sp. 1 Meneghini	-	-	-	1,502	528	437	-
Anacystis sp. 2 Meneghini	-	-	-	-	-	-	-
Aphanothece clathrata G. S. West	-	-	-	-	-	-	-
Aphanothece sp. 1 Nag.	-	-	-	-	-	-	-
Coccochloris peniocystis Dr. and Daily	-	-	-	-	-	-	-
Chroococcus sp. Nageli	-	-	-	-	-	-	-
Dactylococcopsis fascicularis Lemm.	-	-	-	626	-	-	-
Gomphosphaeria lacustris Chod.	-	-	-	-	-	-	228
Lyngbya contorta Lemm.	-	-	2,122	41,918	107,772	-	-
L. Diguetii Gomont	-	-	-	-	-	-	-
L. limnetica Lemm.	-	-	-	8,509	6,604	1,923	-
Lyngbya sp. 1 Agardh	-	-	1,756	-	-	-	-
Nostoc sp. Vaucher	-	-	-	-	-	2,448	-
Oscillatoria angustissima West & West	-	-	2,634	6,507	-	-	-
O. limnetica Lemm.	509	-	366	-	-	-	-
Palmogloea protuberans (Sm. & Sow.) Kuetz	-	-	-	-	12,283	-	-
Spirulina major Kuetz.	-	-	-	-	-	-	-
Euglenophyta							
Euglena sp. Ehr.	-	-	-	-	-	-	-
Trachelomonas varians (Lemm.) Defl.	-	-	-	-	-	-	-
T. volvocina Ehr.	-	-	-	-	132	-	-
Trachelomonas sp. Ehr.	-	-	-	-	-	-	-
Trachelomonas sp. 1 Ehr.	-	-	-	-	-	-	-
unidentified euglenoid sp. 1	-	-	-	-	-	-	-
Pyrrhophyta							
Glenodinium sp. Stein	-	-	-	-	-	-	-
Peridinium sp. Ehr.	-	-	-	125	-	262	-
Others							
unidentified phytoflagellates (<10u)	95	130	2,561	1,251	925	524	911
Total number of taxa observed	23	21	26	27	25	28	13
Total number of individuals per milliliter	20,721	68,842	41,489	117,620	144,410	38,550	7,457

APPENDIX D-3

Temporal variation in zooplankton standing stock at stations in West Point Reservoir, 19 and 1979

CH-12 (02338500) Chattahoochee River at U.S. Highway 27 at Franklin, Ga., 1978

[Standing crop in organisms per cubic meter. *, present in insufficient densities to establish accurate count]

Taxa (Date / Time)	4/18/78 1100	5/8/78 1230	6/6/78 0800	7/13/78 1445	8/17/78 1430	8/31/78 0815
Cladocera						
Alonella hamulata (Birge)	-	-	-	-	-	-
Bosmina longirostris (O. F. Muller)	11,000	*	-	-	*	-
Bosminopsis deitersi Richard	-	-	-	-	-	-
Ceriodaphnia lacustris Birge	-	-	-	-	-	-
Ceriodaphnia spp. Dana	-	-	-	-	-	-
Chydorus sphaericus (O. F. Muller)	-	-	-	-	-	-
Chydorus spp. Leach	7,000	-	-	-	*	-
Daphnia ambigua Scourfield	-	-	-	-	-	-
D. laevis Birge	-	-	-	-	-	-
D. parvula Fordyce	-	*	-	-	-	-
Daphnia (immature) O. F. Muller	-	*	-	-	-	-
Diaphanosoma brachyurum (Lieven)	-	-	-	-	-	-
D. leuchtenbergianum Fischer	-	-	-	-	-	-
Eubosmina tubicen (Brehm)	-	-	-	-	-	-
Holopedium gibberum Zaddach	-	-	-	-	-	-
Ilyocryptus sordidus (Lieven)	-	-	-	*	-	-
Leydigia spp. Kurz	-	-	-	-	-	-
Moina micrura Kurz	-	-	-	*	-	-
Sida crystallina (O. F. Muller)	-	-	-	-	-	-
Simocephalus serrulatus (Koch)	-	-	-	-	-	-
Simocephalus spp. Schodler	-	-	-	-	-	-
Copepoda						
Cyclops bicuspidatus thomasi S. A. Forbes	-	-	-	-	-	-
C. varicans rubellus Lilljeborg	-	-	-	-	-	-
C. vernalis Fischer	-	-	-	-	*	-
Diaptomus bogalusensis M. S. Wilson and Moore	-	-	-	-	-	-
D. floridanus Marsh	-	-	-	-	-	-
D. mississippiensis Marsh	-	-	-	-	-	-
D. pallidus Herrick	-	-	-	-	-	-
Eucyclops spp. Claus	-	-	-	*	-	-
Mesocyclops edax (S. A. Forbes)	-	-	-	*	-	-
Tropocyclops prasinus (Fischer)	-	-	-	-	-	-
Nauplii	28,000	*	1,000	*	*	
Calanoid Copepodids	-	-	-	-	-	
Cyclopoid copepodids	4,000	-	*	*	*	
Parasitic Copepoda						
Ergasilus chautauquaensis Fellows	-	-	-	-	-	-
Ergasilus spp. Smith	-	-	-	-	-	-

Taxa	4/18/78 1100	5/8/78 1230	6/6/78 0800	7/13/78 1445	8/17/78 1430	8/31/78 0815
Rotifera						
Asplanchna spp. Gosse	7,000	-	-	-	-	-
Brachionus angularis Gosse	-	-	-	-	-	-
B. bidentata Anderson	-	-	-	-	-	-
B. calyciflorus Pallas	4,000	-	-	-	-	-
B. caudatus Barrois and Daday	-	-	-	-	-	-
B. havanaensis Rousselet	-	-	-	-	-	-
B. quadridentatus Hermann	4,000	-	-	-	-	-
B. urceolaris Muller	4,000	-	-	-	-	-
Collotheca spp. Harring	-	-	-	-	-	-
Conochiloides natans (Seligo)	-	-	-	-	-	-
Conochiloides spp. Hlava	-	-	-	-	-	-
Conochilus unicornis Rousselet	4,000	-	-	-	-	-
Dipleuchlanis propatula (Gosse)	-	-	-	-	-	*
Euchlanis spp. Ehrenberg	4,000	-	-	-	-	-
Filinia spp. Bory de St. Vincent	-	-	-	-	-	-
Hexarthra spp. Schmarda	-	-	-	*	-	-
Kellicottia bostoniensis (Rousselet)	-	-	-	-	-	-
Keratella cochlearis (Gosse)	-	-	-	-	-	-
K. crassa Ahlstrom	4,000	*	-	-	-	-
K. earlinae Ahlstrom	-	-	*	-	-	-
Lecane spp. Nitzsch	-	-	-	-	-	-
Monostyla spp. Ehrenberg	-	*	-	-	-	-
Notommata spp. Ehrenberg	-	-	-	-	-	-
Platyias patulus (Muller)	-	-	-	-	-	-
P. quadricornis (Ehrenberg)	-	-	-	-	-	-
Ploesoma hudsoni (Imhof)	-	-	-	-	-	-
P. truncatum (Levander)	-	-	-	-	-	-
Polyarthra spp. Ehrenberg	-	-	-	-	-	-
Sinantherina spp. Bory de St. Vincent	-	-	-	*	-	-
Synchaeta spp. Ehrenberg	4,000	*	-	-	-	-
Trichocerca spp. Lamarck	-	-	-	-	-	-
Trichotria spp. Bory de St. Vincent	-	-	-	-	-	-
Bdelloid rotifers	39,000	*	*	1,000	*	*
Miscellaneous groups						
Chaoborus spp. Lichtenstein	-	-	-	-	-	-
Chironomids	-	-	-	-	-	-
Ostracods	-	-	*	*	-	-
Tardigrada	-	-	-	-	-	-
Total number of taxa observed	13	8	5	10	6	2
Total number of cells per cubic meter	D	*	1,000	1,000	*	*

CH-12 (02338500) Chattahoochee River at U.S. Highway 27 at Franklin, Ga., 1979

[Standing crop in organisms per cubic meter. *, present in insufficient densities to establish accurate count]

Taxa	Date Time	5/5/79 1200	6/13/79 1700	7/27/79 1500	8/23/79 1515	9/20/79 1130	10/17/79 1030	12/13/79 1630
Cladocera								
Alona spp. Baird		-	-	-	-	130	-	-
Alonella hamulata (Birge)		-	-	-	-	-	-	-
Bosmina longirostris (O. F. Muller)		370	-	-	-	520	260	100
Bosminopsis deitersi Richard		-	-	-	-	-	-	-
Ceriodaphnia lacustris Birge		-	-	-	-	-	-	-
Ceriodaphnia spp. Dana		-	-	-	-	-	-	-
Chydorus sphaericus (O. F. Muller)		-	-	-	-	-	-	-
Chydorus spp. Leach		-	-	-	-	-	-	-
Daphnia ambigua Scourfield		-	-	-	-	-	-	-
D. laevis Birge		-	-	-	-	-	-	-
D. parvula Fordyce		-	-	-	-	-	-	-
Daphnia spp. O. F. Muller		-	-	-	-	-	-	-
Diaphanosoma brachyurum (Lieven)		-	-	-	-	-	-	-
D. leuchtenbergianum Fischer		-	-	-	-	-	-	-
Eubosmina tubicen (Brehm)		-	-	-	-	-	-	-
Holopedium gibberum Zaddach		-	-	-	-	-	-	-
Ilyocryptus sordidus (Lieven)		-	-	-	-	-	-	-
Leptodora kindtii (Focke)		-	-	-	-	-	-	-
Leydigia leydigi (Schodler)		-	-	-	-	-	-	-
Leydigia spp. Kurz		-	-	-	-	-	-	-
Moina micrura Kurz		-	-	-	-	-	-	-
Pleuroxus denticulatus Birge		-	-	-	-	-	-	-
Scapholeberis kingi Sars		-	-	-	-	-	-	-
Sida crystallina (O. F. Muller)		-	-	-	-	-	-	-
Simocephalus serrulatus (Koch)		-	-	-	-	-	-	-
Simocephalus spp. Schodler		-	-	-	-	-	-	-
Copepoda								
Cyclops bicuspidatus thomasi S. A. Forbes		190	-	-	-	-	-	-
C. varicans rubellus Lilljeborg		-	-	-	-	-	-	-
C. vernalis Fischer		*	-	-	170	*	-	-
Diaptomus bogalusensis M. S. Wilson and Moore		-	-	-	-	-	-	-
D. floridanus Marsh		-	-	-	-	-	-	-
D. mississippiensis Marsh		-	-	-	-	130	-	-
D. pallidus Herrick		-	-	-	-	-	-	-
Eucyclops spp. Claus		-	-	-	-	-	-	-
Mesocyclops edax (S. A. Forbes)		-	-	-	-	-	-	-
Tropocyclops prasinus (Fischer)		-	-	-	-	-	-	*
Nauplii		2,430	*	430	170	1,810	1,050	100
Calanoid copepodids		-	-	-	-	-	-	30
Cyclopoid copedodids		1,310	*	140	170	390	260	100
Harpacticoida		-	-	-	-	260	-	-
Parasitic copepoda								
Ergasilus chautauquaensis Fellows		-	-	-	-	-	-	-
Ergasilus spp. Smith		-	-	-	-	-	-	-

Taxa	Date 5/5/79 Time 1200	6/13/79 1700	7/27/79 1500	8/23/79 1515	9/20/79 1130	10/17/79 1030	12/13/79 1630
Rotifera							
Asplanchna spp. Gosse	-	*	-	-	-	-	-
Brachionus angularis Gosse	-	520	190	-	-	-	-
B. bidentata Anderson	-	-	-	-	-	-	-
B. budapestinensis Daday	-	-	-	-	130	-	-
B. calyciflorus Pallas	-	-	-	-	-	-	-
B. caudatus Barrios and Daday	-	-	-	-	-	-	-
B. havanaensis Rousselet	-	-	-	-	-	-	-
B. quadridentatus Hermann	-	-	-	-	-	-	-
B. urceolaris Muller	750	-	-	-	-	3,160	30
Collotheca spp. Harring	-	-	-	-	-	-	-
Conochiloides natans (Seligo)	-	-	-	-	-	-	-
Conochiloides spp. Hlava	-	-	-	-	-	-	-
Conochilus unicornis Rousselet	-	-	-	-	-	-	-
Dipleuchlanis propatula (Gosse)	-	-	-	340	1,030	790	-
Dipleuchlanis spp. de Beauchamp	-	1,040	140	-	-	-	-
Euchlanis spp. Ehrenberg	190	-	-	-	260	-	-
Filinia spp. Bory de St. Vincent	-	-	-	-	-	-	-
Gastropus stylifer Imhof	-	-	-	-	-	-	-
Hexarthra spp. Schmarda	-	-	-	-	-	-	-
Kellicottia bostoniensis (Rousselet)	-	-	-	-	130	-	70
Keratella cochlearis (Gosse)	-	-	-	-	-	-	-
K. crassa Ahlstrom	370	-	-	-	-	-	-
K. earlinae Ahlstrom	-	-	-	-	-	-	-
K. valga (Ehrenberg)	-	-	-	-	-	-	-
Lecane spp. Nitzsch	-	-	-	-	-	-	-
Monostyla spp. Ehrenberg	-	-	50	-	-	-	30
Notommata spp. Ehrenberg	-	-	-	-	-	-	-
Platyias patulus (Muller)	-	-	-	-	-	-	-
P. quadricornis (Ehrenberg)	-	-	-	-	-	-	-
Ploesoma hudsoni (Imhof)	-	-	-	-	-	-	-
P. truncatum (Levander)	-	-	-	-	-	-	-
Polyarthra spp. Ehrenberg	560	-	-	-	-	-	-
Pompholyx sulcata Hudson	-	-	-	-	260	-	-
Ptygura spp. Ehrenberg	-	-	-	-	-	-	-
Sinantherina Bory de St. Vincent	-	-	-	-	-	-	-
Synchaeta spp. Ehrenberg	-	520	-	-	-	-	130
Trichocerca cylindrica (Imhof)	-	-	-	-	-	-	-
Trichocerca spp. Lamarck	1,310	520	50	-	-	-	-
Trichotria spp. Bory de St. Vincent	-	-	-	-	-	-	-
Bdelloid rotifers	370	520	530	340	640	1,580	420
Miscellaneous groups							
Chaoborus spp. Lichtenstein	-	-	-	-	-	-	-
Chironomids	-	-	-	-	-	-	-
Ostracoda	-	-	-	-	-	-	-
Tardigrada	-	-	-	-	-	-	-
Total number of taxa observed	11	8	7	5	13	6	10
Total number of individuals per cubic meter	7,850	3,120	1,530	1,190	5,690	7,100	1,010

CH-11A (02338570) Chattahoochee River above New River, near Corinth, Ga., 1979

[Standing crop in organisms per cubic meter. *, present in insufficient densities to establish accurate count]

Taxa	Date Time	5/4/79 1600	6/13/79 1600	7/27/79 1800	8/23/79 1330	9/20/79 0830	10/17/79 0945	12/12/79 1300
Cladocera								
Alona spp. Baird		-	-	-	-	-	-	-
Alonella hamulata (Birge)		-	-	-	-	-	-	-
Bosmina longirostris (O. F. Muller)		230	-	320	-	430	*	160
Bosminopsis deitersi Richard		-	-	-	-	-	-	-
Ceriodaphnia lacustris Birge		-	-	-	-	110	-	-
Ceriodaphnia spp. Dana		-	-	-	-	-	-	-
Chydorus sphaericus (O. F. Muller)		-	-	-	-	*	-	-
Chydorus spp. Leach		-	-	-	-	-	-	-
Daphnia ambigua Scourfield		-	-	-	-	-	-	-
D. laevis Birge		-	-	-	-	-	-	-
D. parvula Fordyce		60	-	-	-	-	-	-
Daphnia spp. O. F. Muller		-	*	-	-	-	-	40
Diaphanosoma brachyurum (Lieven)		-	*	-	-	-	-	-
D. leuchtenbergianum Fischer		-	-	-	-	-	-	-
Eubosmina tubicen (Brehm)		-	-	-	-	-	-	-
Holopedium gibberum Zaddach		-	-	-	-	-	-	-
Ilyocryptus sordidus (Lieven)		-	-	*	80	-	*	-
Leptodora kindtii (Focke)		-	-	-	-	-	-	-
Leydigia leydigi (Schodler)		-	-	-	-	-	-	-
Leydigia spp. Kurz		-	-	-	-	-	-	-
Moina micrura Kurz		-	-	-	-	*	-	-
Pleuroxus denticulatus Birge		-	-	-	40	-	-	-
Scapholeberis kingi Sars		-	-	-	-	-	-	-
Sida crystallina (O. F. Muller)		-	-	-	-	-	-	-
Simocephalus serrulatus (Koch)		-	-	-	-	-	-	-
Simocephalus spp. Schodler		-	-	-	-	-	-	80
Copepoda								
Cyclops bicuspidatus thomasi S. A. Forbes		*	-	-	-	-	90	-
C. varicans rubellus Lilljeborg		-	-	*	-	-	-	-
C. vernalis Fischer		-	-	-	40	-	*	-
Diaptomus bogalusensis M. S. Wilson and Moore		-	-	-	-	-	-	-
D. floridanus Marsh		-	-	-	-	*	-	-
D. mississippiensis Marsh		*	130	-	-	-	-	-
D. pallidus Herrick		-	-	-	-	-	-	-
Eucyclops spp. Claus		-	-	80	*	-	-	-
Mesocyclops edax (S. A. Forbes)		-	-	*	-	-	-	40
Tropocyclops prasinus (Fischer)		-	-	80	*	*	-	80
Nauplii		570	750	1,260	510	750	510	280
Calanoid copepodids		-	*	-	-	110	90	-
Cyclopoid copedodids		110	130	1,020	120	320	*	360
Harpacticoida		-	-	-	-	-	-	40
Parasitic copepoda								
Ergasilus chautauguaensis Fellows		-	-	-	-	-	-	-
Ergasilus spp. Smith		-	-	-	-	-	-	-

Taxa	Date Time	5/4/79 1600	6/13/79 1600	7/27/79 1800	8/23/79 1330	9/20/79 0830	10/17/79 0945	12/12/79 1300
Rotifera								
Asplanchna spp. Gosse		60	250	-	-	210	-	-
Brachionus angularis Gosse		-	-	240	-	110	-	-
B. bidentata Anderson		-	-	-	40	-	-	-
B. budapestinensis Daday		-	-	-	-	-	-	-
B. calyciflorus Pallas		-	-	-	-	430	-	-
B. caudatus Barrios and Daday		-	-	80	120	-	-	-
B. havanaensis Rousselet		-	-	*	-	-	-	-
B. quadridentatus Hermann		-	-	80	-	-	-	-
B. urceolaris Muller		510	-	-	-	110	4,170	-
Collotheca spp. Harring		-	-	80	-	-	-	-
Conochiloides natans (Seligo)		-	-	-	-	-	-	-
Conochiloides spp. Hlava		-	-	*	40	110	-	-
Conochilus unicornis Rousselet		-	2,630	2,760	80	4,920	1,190	-
Dipleuchlanis propatula (Gosse)		-	-	-	-	-	-	-
Dipleuchlanis spp. de Beauchamp		-	-	-	-	-	-	-
Euchlanis spp. Ehrenberg		-	-	*	40	-	260	40
Filinia spp. Bory de St. Vincent		-	130	80	-	-	-	-
Gastropus stylifer Imhof		-	-	-	-	-	-	-
Hexarthra spp. Schmarda		-	-	-	-	540	-	-
Kellicottia bostoniensis (Rousselet)		-	130	-	-	430	-	80
Keratella cochlearis (Gosse)		-	500	*	-	-	-	-
K. crassa Ahlstrom		110	-	240	-	-	-	-
K. earlinae Ahlstrom		-	-	-	-	110	-	-
K. valga (Ehrenberg)		-	-	-	-	-	-	-
Lecane spp. Nitzsch		-	-	-	-	-	90	-
Monostyla spp. Ehrenberg		*	-	-	-	-	-	-
Notommata spp. Ehrenberg		-	-	-	-	-	-	-
Platyius patulus (Muller)		-	-	-	-	*	-	-
P. quadricornis (Ehrenberg)		-	-	-	-	-	-	-
Ploesoma hudsoni (Imhof)		-	-	-	-	-	-	-
P. truncatum (Levander)		-	-	-	-	-	*	-
Polyarthra spp. Ehrenberg		290	250	-	-	-	90	80
Pompholyx sulcata Hudson		-	-	-	-	-	-	-
Ptygura spp. Ehrenberg		-	-	-	-	-	-	-
Sinantherina Bory de St. Vincent		-	-	*	120	-	-	-
Synchaeta spp. Ehrenberg		-	750	-	-	-	170	-
Trichocerca cylindrica (Imhof)		-	-	-	-	-	-	-
Trichocerca spp. Lamarck		-	130	-	-	110	*	-
Trichotria spp. Bory de St. Vincent		-	-	-	-	-	-	-
Bdelloid rotifers		140	630	240	80	*	*	80
Miscellaneous groups								
Chaoborus spp. Lichtenstein		-	*	*	*	*	-	-
Chironomids		-	-	-	-	-	-	-
Ostracoda		-	-	-	-	-	-	-
Tardigrada		-	-	-	-	-	-	-
Total number of taxa observed		12	16	22	15	22	16	12
Total number of individuals per cubic meter		2,080	6,410	6,560	1,310	8,800	6,600	1,360

CH-10 (02338710) Chattahoochee River at State Highway 219, near LaGrange, Ga., 1978

[Standing crop in organisms per cubic meter. *, present in insufficient densities to establish accurate count]

Taxa	Date Time	4/17/78 1530	5/2/78 1400	6/5/78 1300	7/12/78 0945	8/16/78 1315	8/29/78 1015
Cladocera							
Alonella hamulata (Birge)		-	-	-	-	*	-
Bosmina longirostris (O. F. Muller)		*	*	*	-	*	*
Bosminopsis deitersi Richard		-	-	-	-	-	-
Ceriodaphnia lacustris Birge		*	*	*	*	*	-
Ceriodaphnia spp. Dana		-	-	-	*	-	-
Chydorus sphaericus (O. F. Muller)		-	-	-	-	-	-
Chydorus spp. Leach		*	*	-	-	-	-
Daphnia ambigua Scourfield		-	*	-	-	-	-
D. laevis Birge		-	-	-	-	-	-
D. parvula Fordyce		1,000	*	*	-	-	-
Daphnia (immature) O. F. Muller		*	*	-	*	-	-
Diaphanosoma brachyurum (Lieven)		-	-	-	-	-	-
D. leuchtenbergianum Fischer		-	-	*	*	*	1,000
Eubosmina tubicen (Brehm)		-	-	-	-	*	*
Holopedium gibberum Zaddach		-	-	-	-	-	-
Ilyocryptus sordidus (Lieven)		-	-	-	-	*	-
Leydigia spp. Kurz		-	-	-	-	-	-
Moina micrura Kurz		-	-	*	2,000	*	1,000
Sida crystallina (O. F. Muller)		-	-	-	-	-	-
Simocephalus serrulatus (Koch)		-	-	-	-	*	-
Simocephalus spp. Schodler		-	-	-	-	-	-
Copepoda							
Cyclops bicuspidatus thomasi S. A. Forbes		-	-	*	-	*	-
C. varicans rubellus Lilljeborg		-	-	-	-	*	-
C. vernalis Fischer		*	-	*	*	-	*
Diaptomus bogalusensis M. S. Wilson and Moore		-	-	-	-	-	-
D. floridanus Marsh		-	-	-	-	-	-
D. mississippiensis Marsh		-	-	-	*	-	-
D. pallidus Herrick		-	-	-	-	-	-
Eucyclops spp. Claus		*	-	-	-	*	-
Mesocyclops edax (S. A. Forbes)		*	-	*	*	*	*
Tropocyclops prasinus (Fischer)		-	-	-	*	*	*
Nauplii		10,000	1,000	1,000	*	4,000	2,000
Calanoid Copepodids		*	-	*	*	*	-
Cyclopoid copepodids		1,000	*	1,000	*	1,000	*
Parasitic copepoda							
Ergasilus chautauquaensis Fellows		-	-	-	-	-	*
Ergasilus spp. Smith		-	-	-	*	-	-

Taxa / Date / Time	4/17/78 1530	5/2/78 1400	6/5/78 1300	7/12/78 0945	8/16/78 1315	8/29/78 1015
Rotifera						
Asplanchna spp. Gosse	2,000	*	2,000	2,000	*	*
Brachionus angularis Gosse	*	-	*	*	*	-
B. bidentata Anderson	-	-	-		*	-
B. calyciflorus Pallas	1,000	*	4,000	*	-	-
B. caudatus Barrois and Daday	-	-	*	19,000	5,000	17,000
B. havanaensis Rousselet	-	-	-	-	*	-
B. quadridentatus Hermann	*	*	-	-	-	-
B. urceolaris Muller	-	*	-	-	-	-
Collotheca spp. Harring	*	*	-	-	*	-
Conochiloides natans (Seligo)	-	-	-	5,000	*	-
Conochiloides spp. Hlava	1,000	*	1,000	-	-	2,000
Conochilus unicornis Rousselet	2,000	*	19,000	35,000	10,000	25,000
Dipleuchlanis propatula (Gosse)	-	-	-	-	-	-
Euchlanis spp. Ehrenberg	-	*	-	-	-	-
Filinia spp. Bory de St. Vincent	*	*	*	*	-	*
Hexarthra spp. Schmarda	-	*	-	3,000	*	1,000
Kellicottia bostoniensis (Rousselet)	1,000	*	*	-	*	-
Keratella cochlearis (Gosse)	*	*	-	-	-	-
K. crassa Ahlstrom	*	*	*	-	2,000	-
K. earlinae Ahlstrom	-	*	-	-	*	-
Lecane spp. Nitzsch	-	*	-	-	-	-
Monostyla spp. Ehrenberg	-	*	-	-	-	-
Notommata spp. Ehrenberg	-	-	-	-	-	-
Platyias patulus (Muller)	-	-	*	-	-	-
P. quadricornis (Ehrenberg)	-	-	-	-	-	-
Ploesoma hudsoni (Imhof)	-	-	-	-	-	-
P. truncatum (Levander)	-	*	-	-	-	-
Polyarthra spp. Ehrenberg	*	*	1,000	2,000	1,000	3,000
Sinantherina spp. Bory de St. Vincent	-	-	*	-	*	5,000
Synchaeta spp. Ehrenberg	1,000	*	2,000	1,000	2,000	-
Trichocerca spp. Lamarck	-	*	*	2,000	1,000	1,000
Trichotria spp. Bory de St. Vincent	-	*	-	-	-	-
Bdelloid rotifers	*	*	*	-	*	-
Miscellaneous groups						
Chaoborus spp. Lichtenstein	*	-	*	*	-	*
Chironomidae	-	-	-	-	-	-
Ostracoda	-	-	-	*	-	-
Tardigrada	-	-	-	-	-	-
Total number of taxa observed	26	30	27	26	33	20
Total number of cells per cubic meter	20,000	1,000	31,000	71,000	26,000	58,000

CH-10 (02338710) Chattahoochee River at State Highway 219, near LaGrange, Ga., 1979

[Standing crop in organisms per cubic meter. *, present in insufficient densities to establish accurate count]

Taxa	Date / Time	5/4/79 1800	6/15/79 1615	7/27/79 1700	8/24/79 1500	9/20/79 1300	10/17/79 0800	1?/12/79 1600
Cladocera								
Alona spp. Baird		-	-	-	-	-	-	-
Alonella hamulata (Birge)		-	-	-	-	-	-	-
Bosmina longirostris (O. F. Muller)		510	260	210	*	140	450	60
Bosminopsis deitersi Richard		-	-	-	-	-	-	-
Ceriodaphnia lacustris Birge		-	260	-	-	-	-	-
Ceriodaphnia spp. Dana		-	-	-	*	-	-	-
Chydorus sphaericus (O. F. Muller)		*	-	-	-	-	-	*
Chydorus spp. Leach		-	-	-	-	-	-	-
Daphnia ambigua Scourfield		*	-	-	-	-	-	-
D. laevis Birge		-	-	-	-	-	-	-
D. parvula Fordyce		-	-	-	-	-	-	-
Daphnia spp. O. F. Muller		-	260	-	-	-	-	-
Diaphanosoma brachyurum (Lieven)		-	790	210	1,560	-	-	-
D. leuchtenbergianum Fischer		-	-	-	-	-	-	-
Eubosmina tubicen (Brehm)		-	-	-	-	-	-	-
Holopedium gibberum Zaddach		-	-	-	-	-	-	-
Ilyocryptus sordidus (Lieven)		-	-	-	-	-	-	-
Leptodora kindtii (Focke)		-	-	-	-	-	-	-
Leydigia leydigi (Schodler)		-	-	-	-	-	-	-
Leydigia spp. Kurz		-	-	-	-	-	-	-
Moina micrura Kurz		-	-	620	1,560	-	-	-
Pleuroxus denticulatus Birge		-	-	-	-	-	-	-
Scapholeberis kingi Sars		-	*	-	-	-	-	-
Sida crystallina (O. F. Muller)		-	-	-	-	-	-	-
Simocephalus serrulatus (Koch)		-	-	-	-	-	-	-
Simocephalus spp. Schodler		-	-	-	-	-	-	-
Copepoda								
Cyclops bicuspidatus thomasi S. A. Forbes		610	-	-	-	-	-	*
C. varicans rubellus Lilljeborg		-	-	-	-	-	-	-
C. vernalis Fischer		*	*	-	*	-	-	30
Diaptomus bogalusensis								
D. floridanus Marsh		-	-	-	-	-	-	-
D. miss'ssippiensis Marsh		-	*	-	-	-	-	-
D. pallidus Herrick		-	-	-	-	-	-	-
Eucyclops spp. Claus		-	-	-	-	-	-	-
Mesocyclops edax (S. A. Forbes)		-	-	-	*	-	*	-
Tropocyclops prasinus (Fischer)		*	-	-	*	410	-	30
Nauplii		2,320	6,040	3,530	3,120	410	90	170
Calanoid copepodids		-	-	-	-	280	-	*
Cyclopoid copedodids		1,210	2,370	1,870	1,560	830	450	250
Harpacticoida		-	-	-	-	-	-	-
Parasitic copepoda								
Ergasilus chautauquaensis Fellows		-	-	-	-	-	-	-
Ergasilus spp. Smith		-	-	-	*	-	-	-

CH-10 (02338710) Chattahoochee River at State Highway 219, near LaGrange, Ga., 1979 -- Continued

Taxa	Date Time	5/4/79 1800	6/15/79 1615	7/27/79 1700	8/24/79 1500	9/20/79 1300	10/17/79 0800	12/12/79 1600
Rotifera								
Asplanchna spp. Gosse		-	1,840	2,490	-	140	-	30
Brachionus angularis Gosse		-	530	1,040	6,030	140	-	-
B. bidentata Anderson		-	-	-	-	-	-	-
B. budapestinensis Daday		-	-	-	-	-	-	-
B. calyciflorus Pallas		-	-	1,040	-	280	-	-
B. caudatus Barrios and Daday		-	14,720	28,430	43,290	140	90	-
B. havanaensis Rousselet		-	-	210	-	-	-	-
B. quadridentatus Hermann		-	-	-	220	-	-	-
B. urceolaris Muller		300	-	-	-	*	540	-
Collotheca spp. Harring		100	-	420	*	140	90	-
Conochiloides natans (Seligo)		-	-	-	-	-	-	-
Conochiloides spp. Hlava		100	-	2,280	1,340	280	*	-
Conochilus unicornis Rousselet		100	10,780	24,690	32,130	16,240	1,430	-
Dipleuchlanis propatula (Gosse)		-	-	-	-	-	-	-
Dipleuchlanis spp. de Beauchamp		-	-	-	-	-	-	-
Euchlanis spp. Ehrenberg		-	-	-	*	140	-	30
Filinia spp. Bory de St. Vincent		-	2,630	1,660	*	410	180	60
Gastropus stylifer Imhof		-	-	1,450	-	-	-	-
Hexarthra spp. Schmarda		-	-	-	4,020	960	-	-
Kellicottia bostoniensis (Rousselet)		100	260	210	*	-	180	90
Keratella cochlearis (Gosse)		-	1,050	-	-	-	-	-
K. crassa Ahlstrom		610	3,940	830	-	*	90	60
K. earlinae Ahlstrom		-	260	-	-	-	-	60
K. valga (Ehrenberg)		-	-	210	-	280	-	-
Lecane spp. Nitzsch		-	-	-	-	-	-	-
Monostyla spp. Ehrenberg		-	-	-	-	-	-	30
Notommata spp. Ehrenberg		-	-	-	-	-	-	-
Platyias patulus (Muller)		-	-	-	-	-	-	-
P. quadricornis (Ehrenberg)		-	-	-	-	-	-	-
Ploesoma hudsoni (Imhof)		-	-	-	-	-	-	-
P. truncatum (Levander)		-	-	-	-	-	-	-
Polyarthra spp. Ehrenberg		200	5,520	1,250	220	-	270	-
Pompholyx sulcata Hudson		-	-	-	-	-	-	-
Ptygura spp. Ehrenberg		-	-	-	-	-	-	-
Sinantherina Bory de St. Vincent		-	-	620	670	-	-	-
Synchaeta spp. Ehrenberg		710	16,290	1,870	220	140	1,610	30
Trichocerca cylindrica (Imhof)		-	-	-	-	-	*	-
Trichocerca spp. Lamarck		100	1,840	2,700	2,230	140	-	-
Trichotria spp. Bory de St. Vincent		-	-	-	-	-	-	-
Bdelloid rotifers		200	-	-	*	*	90	230
Miscellaneous groups								
Chaoborus spp. Lichtenstein		-	*	*	*	-	-	-
Chironomids		-	-	-	-	-	-	-
Ostracoda		-	-	-	-	-	-	-
Tardigrada		-	-	-	-	-	-	-
Total number of taxa observed		18	22	23	26	21	17	17
Total number of individuals per cubic meter		7,170	69,640	77,840	98,170	21,490	5,560	1,160

CH-07 (02338720) Chattahoochee River (City of LaGrange intake) near LaGrange, Ga., 1978

[Standing crop in organisms per cubic meter. *, present in insufficient densities to establish accurate count]

Taxa	Date / Time	4/12/78 1400	5/4/78 1245	6/1/78 1315	7/11/78 1345	8/17/78 0930	8/29/78 1415
Cladocera							
Alonella hamulata (Birge)		-	-	-	-	-	-
Bosmina longirostris (O. F. Muller)		*	*	*	-	*	*
Bosminopsis deitersi Richard		-	-	-	-	-	-
Ceriodaphnia lacustris Birge		-	-	-	*	*	*
Ceriodaphnia spp. Dana		-	-	-	*	-	-
Chydorus sphaericus (O. F. Muller)		*	-	-	-	-	-
Chydorus spp. Leach		-	-	-	-	-	-
Daphnia ambigua Scourfield		*	*	*	-	-	-
D. laevis Birge		-	-	-	-	-	-
D. parvula Fordyce		*	-	*	-	-	-
Daphnia (immature) O. F. Muller		-	-	-	*	-	-
Diaphanosoma brachyurum (Lieven)		-	-	-	-	*	-
D. leuchtenbergianum Fischer		*	-	*	*	-	*
Eubosmina tubicen (Brehm)		-	-	-	-	*	*
Holopedium gibberum Zaddach		-	-	-	-	-	-
Ilyocryptus sordidus (Lieven)		-	-	-	*	*	-
Leydigia spp. Kurz		*	-	-	-	-	-
Moina micrura Kurz		-	-	*	1,000	*	1,000
Sida crystallina (O. F. Muller)		-	-	-	-	*	*
Simocephalus serrulatus (Koch)		-	-	-	-	*	-
Simocephalus spp. Schodler		-	-	-	-	-	-
Copepoda							
Cyclops bicuspidatus thomasi S. A. Forbes		*	-	*	-	*	-
C. varicans rubellus Lilljeborg		-	-	-	-	-	-
C. vernalis Fischer		*	-	*	-	*	-
Diaptomus bogalusensis M. S. Wilson and Moore		-	-	-	-	-	-
D. floridanus Marsh		-	-	-	-	*	-
D. mississippiensis Marsh		-	-	*	-	*	*
D. pallidus Herrick		-	-	-	-	-	-
Eucyclops spp. Claus		-	-	-	-	-	-
Mesocyclops edax (S. A. Forbes)		*	-	*	*	*	-
Tropocyclops prasinus (Fischer)		*	-	*	*	*	*
Nauplii		1,000	1,000	1,000	2,000	4,000	2,000
Calanoid Copepodids		*	-	*	*	*	*
Cyclopoid copepodids		1,000	*	*	1,000	1,000	*
Parasitic copepoda							
Ergasilus chautauquaensis Fellows		-	-	-	-	*	*
Ergasilus spp. Smith		-	-	*	*	-	-

Taxa	Date / Time	4/12/78 1400	5/4/78 1245	6/1/78 1315	7/11/78 1345	8/17/78 0930	8/29/78 1415
Rotifera							
Asplanchna spp. Gosse		2,000	1,000	3,000	1,000	*	*
Brachionus angularis Gosse		-	-	-	-	*	-
B. bidentata Anderson		-	*	-	-	-	-
B. calyciflorus Pallas		14,000	*	4,000	-	-	-
B. caudatus Barrois and Daday		-	-	*	4,000	13,000	15,000
B. havanaensis Rousselet		-	-	-	-	*	-
B. quadridentatus Hermann		*	*	-	-	-	-
B. urceolaris Muller		*	*	-	-	-	-
Collotheca spp. Harring		-	-	*	-	1,000	-
Conochiloides natans (Seligo)		-	-	-	4,000	1,000	2,000
Conochiloides spp. Hlava		*	*	*	-	-	2,000
Conochilus unicornis Rousselet		5,000	*	24,000	43,000	17,000	29,000
Dipleuchlanis propatula (Gosse)		-	-	-	-	-	-
Euchlanis spp. Ehrenberg		-	*	-	-	-	-
Filinia spp. Bory de St. Vincent		-	-	*	*	*	-
Hexarthra spp. Schmarda		-	-	-	3,000	1,000	*
Kellicottia bostoniensis (Rousselet)		1,000	*	1,000	*	*	-
Keratella cochlearis (Gosse)		*	-	*	-	*	-
K. crassa Ahlstrom		*	*	1,000	*	*	*
K. earlinae Ahlstrom		-	-	-	-	*	-
Lecane spp. Nitzsch		-	-	-	-	-	-
Monostyla spp. Ehrenberg		-	-	-	-	-	-
Notommata spp. Ehrenberg		*	-	-	-	-	*
Platyias patulus (Muller)		-	-	-	-	-	-
P. quadricornis (Ehrenberg)		-	-	-	-	*	-
Ploesoma hudsoni (Imhof)		-	-	-	-	-	-
P. truncatum (Levander)		-	*	1,000	-	*	-
Polyarthra spp. Ehrenberg		1,000	*	-	4,000	1,000	*
Sinantherina spp. Bory de St. Vincent		-	-	1,000	-	-	*
Synchaeta spp. Ehrenberg		4,000	*	-	1,000	2,000	*
Trichocerca spp. Lamarck		-	-	*	1,000	2,000	-
Trichotria spp. Bory de St. Vincent		-	*	-	-	-	1,000
Bdelloid rotifers		-	*	*	-	*	-
Miscellaneous groups							
Chaoborus spp. Lichtenstein		*	-	*	*	*	-
Chironomids		-	*	-	-	-	-
Ostracoda		-	-	-	*	*	-
Tardigrada		-	-	-	-	-	-
Total number of taxa observed		26	20	29	25	39	24
Total number of cells per cubic meter		29,000	2,000	36,000	65,000	43,000	52,000

CH-07 (02338720) Chattahoochee River (City of LaGrange intake) near LaGrange, Ga., 1979

[Standing crop in organisms per cubic meter. *, present in insufficient densities to establish accurate count]

Taxa	Date 5/5/79 Time 0900	6/15/79 1400	7/27/79 1430	8/24/79 1300	9/20/79 1330	10/17/79 1300	12/12/79 1700
Cladocera							
Alona spp. Baird	-	-	-	-	-	-	-
Alonella hamulata (Birge)	-	30	-	-	-	-	-
Bosmina longirostris (O. F. Muller)	1,000	1,020	560	430	*	*	460
Bosminopsis deitersi Richard	-	-	-	-	-	-	-
Ceriodaphnia lacustris Birge	-	680	*	*	-	*	-
Ceriodaphnia spp. Dana	-	-	-	-	-	-	-
Chydorus sphaericus (O. F. Muller)	130	-	-	-	-	-	-
Chydorus spp. Leach	-	-	-	-	-	-	-
Daphnia ambigua Scourfield	-	-	-	-	-	-	-
D. laevis Birge	-	-	-	-	-	-	
D. parvula Fordyce	-	-	-	-	-	-	-
Daphnia spp. O. F. Muller	250	1,030	-	-	-	*	-
Diaphanosoma brachyurum (Lieven)	-	1,370	840	1,290	*	*	-
D. leuchtenbergianum Fischer	-	-	-	-	-	-	-
Eubosmina tubicen (Brehm)	-	-	-	-	-	-	-
Holopedium gibberum Zaddach	-	-	-	-	-	-	-
Ilyocryptus sordidus (Lieven)	-	-	-	-	-	-	-
Leptodora kindtii (Focke)	-	-	-	-	-	-	-
Leydigia leydigi (Schodler)	-	-	-	-	-	-	*
Leydigia spp. Kurz	-	-	-	-	-	-	-
Moina micrura Kurz	-	-	2,240	2,370	*	-	-
Pleuroxus denticulatus Birge	-	-	-	-	-	-	-
Scapholeberis kingi Sars	-	-	-	-	-	-	-
Sida crystallina (O. F. Muller)	-	-	-	-	-	-	-
Simocephalus serrulatus (Koch)	-	-	-	-	-	-	-
Simocephalus spp. Schodler	-	-	-	-	-	-	-
Copepoda							
Cyclops bicuspidatus thomasi S. A. Forbes	750	-	-	*	-	*	40
C. varicans rubellus Lilljeborg	-	-	-	-	-	-	-
C. vernalis Fischer	-	340	*	*	*	*	-
Diaptomus bogalusensis M. S. Wilson and Moore	-	-	-	-	-	-	-
D. floridanus Marsh	-	-	-	*	-	-	-
D. mississippiensis Marsh	-	*		-	-	-	-
D. pallidus Herrick	-	-	-	-	-	-	-
Eucyclops spp. Claus	130	-	-	-	-	-	-
Mesocyclops edax (S. A. Forbes)	-	340	560	220	-	-	-
Tropocyclops prasinus (Fischer)	-	*	*	*	-	*	-
Nauplii	7,130	15,370	8,680	5,180	2,680	3,470	320
Calanoid copepodids	-	*	*	-	*	-	-
Cyclopoid copedodids	1,000	6,150	5,040	3,020	1,340	1,730	140
Harpacticoida	-	-	-	-	-	-	-
Parasitic copepoda							
Ergasilus chautauquaensis Fellows	-	-	-	-	-	-	-
Ergasilus spp. Smith	-	-	-	*	-	-	-

Taxa	Date / Time	5/5/79 0900	6/15/79 1400	7/27/79 1430	8/24/79 1300	9/20/79 1330	10/17/79 1300	12/12/79 1700
Rotifera								
Asplanchna spp. Gosse		-	7,860	1,960	[illegible]	*	-	-
Brachionus angularis Gosse		-	-	2,240	860	-	-	-
B. bidentata Anderson		*	-	-	-	-	-	-
B. budapestinensis Daday		-	-	-	-	-	-	-
B. calyciflorus Pallas		-	1,030	3,360	-	-	-	-
B. caudatus Barrios and Daday		-	45,770	23,520	22,870	890	-	-
B. havanaensis Rousselet		-	-	280	-	-	-	-
B. quanridentatus Hermann		130	-	-	-	-	-	
B. urceolaris Muller		250	-	-	-	*	-	40
Collotheca spp. Harring		380	-	840	1,080	450	4,040	-
Conochiloides natans (Seligo)		-	-	-	2,160	-	-	-
Conochiloides spp. Hlava		380	1,030	392	75,940	1,790	870	-
Conochilus unicornis Rousselet		750	48,850	62,440	-	55,340	19,920	*
Dipleuchlanis propatula (Gosse)		-	-	-	-	-	-	-
Dipleuchlanis spp. de Beauchamp		-	-	-	-	-	-	-
Euchlanis spp. Ehrenberg		*	-	-	-	-	-	40
Filinia spp. Bory de St. Vincent		-	4,100	840	*	*	-	40
Gastropus stylifer Imhof		-	-	840	-	-	-	-
Hexarthra spp. Schmarda		-	-		9,490	2,460	1,160	-
Kellicottia bostoniensis (Rousselet)		130	2,390	1,120	1,510	450	7,220	70
Keratella cochlearis (Gosse)		-	4,100	-	*	-	1,730	-
K. crassa Ahlstrom		2,250	13,660	*	*	-	3,750	*
K. earlinae Ahlstrom		-	1,030	-	-	-	*	-
K. valga (Ehrenberg)		-	-	2,240	-	*	-	-
Lecane spp. Nitzsch		-	-	-	-	-	-	-
Monostyla spp. Ehrenberg		*	-	-	-	-	-	-
Notommata spp. Ehrenberg		-	-	-	-	-	-	-
Platyias patulus (Muller)		-	-	-	*	-	-	-
P. quadricornis (Ehrenberg)		-	-	*	-	-	-	-
Ploesoma hudsoni (Imhof)		-	-	-	-	-	-	-
P. truncatum (Levander)		-	-	280	220	-	290	-
Polyarthra spp. Ehrenberg		250	10,250	1,680	220	*	4,330	40
Pompholyx sulcata Hudson		130	-	-	-	-	-	-
Ptygura spp. Ehrenberg		-	-	-	-	-	-	-
Sinantherina Bory de St. Vincent		-	-	-	-	450	-	-
Synchaeta spp. Ehrenberg		2,000	22,200	1,680	1,080	2,010	15,880	-
Trichocerca cylindrica (Imhof)		-	-	-	-	*	-	-
Trichocerca spp. Lamarck		130	2,050	5,320	5,610	-	-	-
Trichotria spp. Bory de St. Vincent		*	-	-	-	-	-	-
Bdelloid rotifers		130	340	-	*	*	290	80
Miscellaneous groups								
Chaoborus spp. Lichtenstein		-	-	-	*	*	*	-
Chironomids		-	-	-	-	-	-	-
Ostracoda		-	-	-	-	-	-	-
Tardigrada		-	-	-	-	-	-	-
Total number of taxa observed		23	26	28	30	23	22	13
Total number of individuals per cubic meter		17,200	190,990	126,952	133,980	67,860	64,680	1,270

OH-05A (02339190) Chattahoochee River at State Highway 701, near Abbottsford, Ga., 1978

[Standing crop in organisms per cubic meter. *, present in insufficient densities to establish accurate count]

Taxa / Date / Time	4/12/78 1200	5/3/78 1030	6/1/78 1015	7/11/78 0945	8/15/78 1020	8/30/78 1515
Cladocera						
Alonella hamulata (Birge)	-	-	-	-	-	-
Bosmina longirostris (O. F. Muller)	*	1,000	1,000	-	1,000	*
Bosminopsis deitersi Richard	-	-	-	*	*	-
Ceriodaphnia lacustris Birge	-	*	*	*	-	-
Ceriodaphnia spp. Dana	-	-	-	*	-	-
Chydorus sphaericus (O. F. Muller)	-	-	-	-	-	-
Chydorus spp. Leach	-	-	-	-	-	-
Daphnia ambigua Scourfield	*	-	*	-	-	-
D. laevis Birge	-	-	*	-	-	-
D. parvula Fordyce	-	*	*	-	-	*
Daphnia (immature) O. F. Muller	-	*	1,000	-	-	-
Diaphanosoma brachyurum (Lieven)	-	-	-	-	-	-
D. leuchtenbergianum Fischer	-	*	1,000	*	3,000	1,000
Eubosmina tubicen (Brehm)	-	-	-	-	-	-
Holopedium gibberum Zaddach	-	-	*	*	-	-
Ilyocryptus sordidus (Lieven)	-	-	-	-	-	-
Leydigia spp. Kurz	-	-	-	-	-	-
Moina micrura Kurz	-	-	-	*	2,000	1,000
Sida crystallina (O. F. Muller)	-	-	-	-	-	-
Simocephalus serrulatus (Koch)	-	*	-	-	-	-
Simocephalus spp. Schodler	-	-	*	-	-	-
Copepoda						
Cyclops bicuspidatus thomasi S. A. Forbes	-	-	*	-	-	-
C. varicans rubellus Lilljeborg	-	-	-	-	-	-
C. vernalis Fischer	*	*	*	-	*	-
Diaptomus bogalusensis M. S. Wilson and Moore	-	-	*	-	-	-
D. floridanus Marsh	-	-	-	-	*	-
D. mississippiensis Marsh	*	*	*	-	*	*
D. pallidus Herrick	-	-	-	-	-	-
Eucyclops spp. Claus	-	-	-	-	-	-
Mesocyclops edax (S. A. Forbes)	*	-	1,000	*	*	*
Tropocyclops prasinus (Fischer)	*	-	-	*	*	*
Nauplii	1,000	1,000	2,000	*	10,000	3,000
Calanoid Copepodids	-	*	*	*	*	-
Cyclopoid copepodids	1,000	*	1,000	*	2,000	1,000
Parasitic copepoda						
Ergasilus chautauquaensis Fellows	-	-	-	-	*	-
Ergasilus spp. Smith	-	-	*	-	-	-

Taxa	Date / Time	4/12/78 1200	5/3/78 1030	6/1/78 1015	7/11/78 0945	8/15/78 1020	8/30/78 1515
Rotifera							
Asplanchna spp. Gosse		6,000	5,000	2,000	*	1,000	*
Brachionus angularis Gosse		-	*	*	-	1,000	2,000
B. bidentata Anderson		-	*	-	-	-	-
B. calyciflorus Pallas		15,000	5,000	1,000	-	-	-
B. caudatus Barrois and Daday		-	*	7,000	1,000	6,000	1,000
B. havanaensis Rousselet		-	-	-	-	*	-
B. quadridentatus Hermann		*	*	-	-	-	-
B. urceolaris Muller		*	*	-	-	-	-
Collotheca spp. Harring		-	*	*	*	*	*
Conochiloides natans (Seligo)		-	-	-	1,000	8,000	-
Conochiloides spp. Hlava		*	*	3,000	-	-	3,000
Conochilus unicornis Rousselet		8,000	5,000	23,000	4,000	60,000	26,000
Dipleuchlanis propatula (Gosse)		-	-	-	-	-	-
Euchlanis spp. Ehrenberg		-	-	-	-	-	-
Filinia spp. Bory de St. Vincent		*	*	1,000	-	*	-
Hexarthra spp. Schmarda		-	-	*	*	*	*
Kellicottia bostoniensis (Rousselet)		1,000	*	*	-	*	*
Keratella cochlearis (Gosse)		*	*	*	*	*	*
K. crassa Ahlstrom		*	*	*	*	1,000	*
K. earlinae Ahlstrom		-	*	*	-	-	-
Lecane spp. Nitzsch		-	-	-	-	-	-
Monostyla spp. Ehrenberg		-	-	-	-	-	-
Notommata spp. Ehrenberg		-	*	-	-	-	-
Platyias patulus (Muller)		-	-	-	-	-	-
P. quadricornis (Ehrenberg)		-	-	-	-	*	-
Ploesoma hudsoni (Imhof)		-	-	-	-	-	-
P. truncatum (Levander)		-	-	*	*	4,000	*
Polyarthra spp. Ehrenberg		2,000	3,000	1,000	*	1,000	*
Sinantherina spp. Bory de St. Vincent		-	-	-	-	*	-
Synchaeta spp. Ehrenberg		2,000	3,000	*	*	1,000	1,000
Trichocerca spp. Lamarck		-	*	*	*	1,000	*
Trichotria spp. Bory de St. Vincent		-	-	-	-	-	-
Bdelloid rotifers		-	*	-	-	-	-
Miscellaneous groups							
Chaoborus spp. Lichtenstein		-	-	*	*	*	*
Chironomids		-	-	-	-	-	-
Ostracoda		-	-	-	-	-	*
Tardigrada		-	-	-	-	-	-
Total number of taxa observed		20	31	36	24	32	25
Total number of cells per cubic meter		36,000	23,000	45,000	6,000	102,000	39,000

Taxa	Date / Time	5/4/79 1230	6/15/79 1200	7/27/79 1245	8/24/79 1030	9/20/79 1630	10/17/79 1500	12/13/79 1030
Rotifera								
Asplanchna spp. Gosse		3,360	6,490	820	-	200	1,670	-
Brachionus angularis Gosse		-	2,160	10,250	2,240	400	*	-
B. bidentata Anderson		-	-	-	-	-	-	-
B. budapestinensis Daday		-	-	-	-	-	-	-
B. calyciflorus Pallas		-	*	*	-	-	-	-
B. caudatus Barrios and Daday		-	43,680	15,580	2,470	2,300	1,120	-
B. havanaensis Rousselet		-	430	-	-	-	-	-
B. quadridentatus Hermann		-	-	-	-	-	-	20
B. urceolaris Muller		-	-	-	-	-	-	60
Collotheca spp. Harring		420	870	410	670	1,470	-	80
Conochiloides natans (Seligo)		-	-	-	-	-	-	-
Conochiloides spp. Hlava		-	870	4,720	2,470	1,670	2,230	-
Conochilus unicornis Rousselet		280	116,340	21,320	36,520	38,710	132,130	60
Dipleuchlanis propatula (Gosse)		-	-	-	-	-	-	-
Dipleuchlanis spp. de Beauchamp		-	-	-	-	-	-	-
Euchlanis spp. Ehrenberg		-	-	-	-	-	-	20
Filinia spp. Bory de St. Vincent		-	13,840	-	-	*	*	150
Gastropus stylifer Imhof		140	-	6,360	-	-	-	-
Hexarthra spp. Schmarda		-	2,160	-	5,600	2,460	1,670	-
Kellicottia bostoniensis (Rousselet)		280	430	850	-	450	2,230	170
Keratella cochlearis (Gosse)		-	5,190	620	-	-	560	40
K. crassa Ahlstrom		840	22,060	-	-	-	8,920	*
K. earlinae Ahlstrom		-	870	-	-	-	1,670	20
K. valga (Ehrenberg)		-	-	620	-	*	560	-
Lecane spp. Nitzsch		-	-	-	-	-	-	-
Monostyla spp. Ehrenberg		-	-	-	-	-	-	-
Notommata spp. Ehrenberg		-	-	-	-	-	-	-
Platyias patulus (Muller)		-	-	-	-	-	-	-
P. quadricornis (Ehrenberg)		-	-	-	-	-	-	-
Ploesoma hudsoni (Imhof)		-	-	-	-	-	-	-
P. truncatum (Levander)		-	*	820	-	-	3,900	-
Polyarthra spp. Ehrenberg		560	15,140	410	2,470	*	1,120	60
Pompholyx sulcata Hudson		-	-	-	-	-	-	-
Ptygura spp. Ehrenberg		-	-	-	-	-	-	-
Sinantherina Bory de St. Vincent		*	-	410	-	-	-	20
Synchaeta spp. Ehrenberg		840	7,350	820	1,120	2,090	8.920	440
Trichocerca cylindrica (Imhof)		-	-	-	5,380	420	560	-
Trichocerca spp. Lamarck		140	9,520	4,720	2,020	210	1,120	20
Trichotria spp. Bory de St. Vincent		140	-	-	-	-	-	-
Bdelloid rotifers		560	-	-	220	-	560	230
Miscellaneous groups								
Chaoborus spp. Lichtenstein		-	-	*	*	*	*	-
Chironomids		-	-	-	-	-	-	-
Ostracoda		-	-	-	-	-	-	-
Tardigrada		-	-	-	-	-	-	-
Total number of taxa observed		22	30	28	21	22	28	24
Total number of individuals per cubic meter		13,580	283,740	80,550	81,340	64,410	176,750	3,880

CH-05A (02339190) Chattahoochee River at State Highway 701, near Abbottsford, Ga., 1979

[Standing crop in organisms per cubic meter. *, present in insufficient densities to establish accurate count]

Taxa	Date Time	5/4/79 1230	6/15/79 1200	7/27/79 1245	8/24/79 30	9/20/79 1630	10/17/79 1500	12/13/79 1000
Cladocera								
Alona spp. Baird		-	-	-	-	-	-	-
Alonella hamulata (Birge)		-	-	-	-	-	-	-
Bosmina longirostris (O. F. Muller)		1,120	6,490	1,030	1,790	1,050	,670	600
Bosminopsis deitersi Richard		-	430	820	670	-	-	-
Ceriodaphnia lacustris Birge		-	430	*	-	-	-	-
Ceriodaphnia spp. Dana		-	-	-	-	-	-	-
Chydorus sphaericus (O. F. Muller)		-	-	-	-	-	-	-
Chydorus spp. Leach		-	-	-	-	-	-	-
Daphnia ambigua Scourfield		-	*	-	-	-	-	-
D. laevis Birge		-	-	-	-	-	-	-
D. parvula Fordyce		*	*	210	-	-	*	400
Daphnia spp. O. F. Muller		280	870	820	-	*	*	-
Diaphanosoma brachyurum (Lieven)		-	430	1,030	220	1,260	*	-
D. leuchtenbergianum Fischer		-	-	-	-	-	-	-
Eubosmina tubicen (Brehm)		-	-	-	-	-	-	-
Holopedium gibberum Zaddach		-	-	-	-	-	-	-
Ilyocryptus sordidus (Lieven)		-	-	-	*	-	-	-
Leptodora kindtii (Focke)		-	-	-	-	-	-	-
Leydigia leydigi (Schodler)		-	-	-	-	-	-	40
Leydigia spp. Kurz		-	-	-	-	-	-	-
Moina micrura Kurz		-	-	1,030	2,470	840	-	-
Pleuroxus denticulatus Birge		-	-	-	-	-	-	-
Scapholeberis kingi Sars		-	-	-	-	-	-	-
Sida crystallina (O. F. Muller)		-	-	-	-	-	-	-
Simocephalus serrulatus (Koch)		-	-	-	-	-	-	-
Simocephalus spp. Schodler		-	-	-	-	-	-	-
Copepoda								
Cyclops bicuspidatus thomasi S. A. Forbes		280	-	-	-	-	-	20
C. varicans rubellus Lilleborg		-	-	-	-	-	-	-
C. vernalis Fischer		140	-	-	-	210	-	40
Diaptomus bogalusensis M. S. Wilson and Moore		-	-	-	-	-	-	-
D. floridanus Marsh		-	-	-	-	-	-	-
D. mississippiensis Marsh		*	*	-	-	-	-	-
D. pallidus Herrick		-	-	-	-	-	-	-
Eucyclops spp. Claus		-	-	-	-	-	-	-
Mesocyclops edax (S. A. Forbes)		140	-	210	*	-	560	60
Tropocyclops prasinus (Fischer)		-	*	210	220	-	560	40
Nauplii		2,520	23,360	5,330	12,770	9,000	3,900	810
Calanoid copepodids		420	*	-	-	-	*	-
Cyclopoid copedodids		1,120	4,330	1,230	2 020	1,670	1,120	480
Harpacticoids		-	-	-	-	-	-	-
Parasitic copepoda								
Ergasilus chautauguaensis Fellows		-	-	-	-	-	-	-
Ergasilus spp. Smith		-	-	-	-	-	-	-

CH-03C (02339388) Chattahoochee River below Coffer Dam, above West Point Dam, 1978

(Standing crop in organisms per cubic meter. *, present in insufficient densities to establish accurate count)

Taxa	Date / Time	4/10/78 1645	5/14/78 1115	7/10/78 1315	8/14/78 0930	8/30/78 1200
Cladocera						
Alonella hamulata (Birge)		-	-	-	-	-
Bosmina longirostris (O. F. Muller)		*	6,000	-	3,000	1,000
Bosminopsis deiterai Richard		-	-	*	2,000	-
Ceriodaphnia lacustris Birge		-	*	-	*	-
Ceriodaphnia spp. Dana		-	-	-	-	-
Chydorus sphaericus (O. F. Muller)		-	-	-	-	-
Chydorus spp. Leach		-	-	-	-	-
Daphnia ambigua Scourfield		-	*	-	-	-
D. laevis Birge		-	-	-	-	-
D. parvula Fordyce		-	1,000	-	-	-
Daphnia (immature) O. F. Muller		-	*	-	-	-
Diaphanosoma brachyurum (Lieven)		-	-	-	-	-
D. leuchtenbergianum Fischer		-	*	*	*	*
Eubosmina tubicen (Brehm)		-	-	-	-	-
Holopedium gibberum Zaddach		-	*	-	-	-
Ilyocryptus sordidus (Lieven)		-	-	-	-	-
Leydigia spp. Kurz		-	-	-	-	-
Moina micrura Kurz		-	-	-	*	-
Sida crystallina (O. F. Muller)		-	-	-	-	-
Simocephalus serrulatus (Koch)		-	-	-	-	-
Simocephalus spp. Schodler		*	-	-	-	-
Copepoda						
Cyclops bicuspidatus thomasi S. A. Forbes		*	*	-	-	-
C. varicans rubellus Lilljeborg		-	-	-	-	-
C. vernalis Fischer		*	*	-	-	-
Diaptomus bogalusensis M. S. Wilson and Moore		-	-	-	-	-
D. floridanus Marsh		-	-	-	-	-
D. mississippiensis Marsh		-	*	-	-	-
D. pallidus Herrick		-	*	-	-	-
Eucyclops spp. Claus		-	-	-	-	-
Mesocyclops edax (S. A. Forbes)		-	1,000	*	1,000	*
Tropocyclops prasinus (Fischer)		-	-	-	*	*
Nauplii		*	4,000	*	4,000	4,000
Calanoid Copepodids		*	1,000	-	-	-
Cyclopoid copepodids		*	2,000	*	2,000	2,000
Parasitic copepoda						
Ergasilus chautauquaensis Fellows		-	-	-	-	-
Ergasilus spp. Smith		-	-	-	-	-

Taxa	Date Time	4/10/78 1645	5/14/78 1115	7/10/78 1315	8/14/78 0930	8/30/78 1200
Rotifera						
Asplanchna spp. Gosse		1,000	*	*	1,000	1,000
Brachionus angularis Gosse		-	-	-	*	*
B. bidentata Anderson		-	-	-	-	-
B. calyciflorus Pallas		2,000	-	-	-	-
B. caudatus Barrois and Daday		-	-	-	-	-
B. havanaensis Rousselet		-	-	-	-	-
B. quadridentatus Hermann		-	-	-	-	-
B. urceolaris Muller		-	-	-	-	-
Collotheca spp. Harring		1,000	*	*	2,000	-
Conochiloides natans (Seligo)		-	-	*	1,000	-
Conochiloides spp. Hlava		*	*	-	-	*
Conochilus unicornis Rousselet		*	5,000	*	-	*
Dipleuchlanis propatula (Gosse)		-	-	-	-	-
Euchlanis spp. Ehrenberg		-	-	-	-	-
Filinia spp. Bory de St. Vincent		-	-	-	-	-
Hexarthra spp. Schmarda		-	-	*	*	*
Kellicottia bostoniensis (Rousselet)		-	*	-	-	-
Keratella cochlearis (Gosse)		-	*	*	*	*
K. crassa Ahlstrom		*	*	*	-	*
K. earlinae Ahlstrom		-	*	-	-	-
Lecane spp. Nitzsch		-	-	-	-	-
Monostyla spp. Ehrenberg		-	-	-	-	-
Notommata spp. Ehrenberg		-	-	-	*	-
Platyias patulus (Muller)		-	-	-	-	-
P. quadricornis (Ehrenberg)		-	-	-	-	-
Ploesoma hudsoni (Imhof)		-	-	-	-	-
P. truncatum (Levander)		-	-	1,000	*	4,000
Polyarthra spp. Ehrenberg		-	1,000	*	2,000	2,000
Sinantherina spp. Bory de St. Vincent		-	-	-	-	-
Synchaeta spp. Ehrenberg		*	*	-	*	-
Trichocerca spp. Lamarck		-	*	*	1,000	*
Trichotria spp. Bory de St. Vincent		-	-	-	-	-
Bdelloid rotifers		*	-	-	-	-
Miscellaneous groups						
Chaoborus spp. Lichtenstein		-	*	*	*	*
Chironomids		-	-	-	-	-
Ostracoda		-	-	-	-	*
Tardigrada		-	-	-	-	-
Total number of taxa observed		15	27	16	21	18
Total number of cells per cubic meter		4,000	21,000	1,000	19,000	14,000

CH-03C (02339388) Chattahoochee River below Coffer Dam, above West Point Dam, 1979

[Standing crop in organisms per cubic meter. *, present in insufficient densities to establish accurate count]

Taxa	Date 5/4/79 Time 1030	6/14/79 1545	7/27/79 1030	8/24/79 0900	9/20/79 1530	10/17/79 1600	12/11/79 1330
Cladocera							
Alona spp. Baird	-	-	-	-	-	-	-
Alonella hamulata (Birge)	-	-	-	-	-	-	-
Bosmina longirostris (O. F. Muller)	6,300	3,080	3,300	2,440	1,260	15,620	1,600
Bosminopsis deitersi Richard	-	-	1,440	2,560	420	-	-
Ceriodaphnia lacustris Birge	360	820	-	*	140	*	-
Ceriodaphnia spp. Dana	-	-	-	-	-	-	110
Chydorus sphaericus (O. F. Muller)	-	-	-	-	-	-	-
Chydorus spp. Leach	-	-	-	-	-	-	-
Daphnia ambigua Scourfield	*	-	-	-	-	-	-
D. laevis Birge	-	-	-	-	-	-	-
D. parvula Fordyce	3,960	*	-	-	-	*	*
Daphnia spp. O. F. Muller	900	*	-	-	-	1,070	*
Diaphanosoma brachyurum (Lieven)	180	410	-	110	140	360	-
D. leuchtenbergianum Fischer	-	-	-	-	-	-	-
Eubosmina tubicen (Brehm)	-	-	-	-	-	-	-
Holopedium gibberum Zaddach	540	-	-	-	-	-	-
Ilyocryptus sordidus (Lieven)	-	-	-	-	-	-	-
Leptodora kindtii (Focke)	-	*	-	-	-	-	-
Leydigia leydigi (Schodler)	-	-	-	-	-	-	-
Leydigia spp. Kurz	-	-	-	-	-	-	-
Moina micrura Kurz	-	-	210	110	-	-	-
Pleuroxus denticulatus Birge	-	-	-	-	-	-	-
Scapholeberis kingi Sars	-	-	-	-	-	-	-
Sida crystallina (O. F. Muller)	-	-	-	-	-	360	-
Simocephalus serrulatus (Koch)	-	-	-	-	-	-	-
Simocephalus spp. Schodler	180	-	-	-	-	-	-
Copepoda							
Cyclops bicuspidatus thomasi S. A. Forbes	360	-	-	-	-	-	110
C. varicans rubellus Lilljeborg	-	-	-	-	-	-	-
C. vernalis Fischer	-	*	-	-	-	360	*
Diaptomus bogalusensis M. S. Wilson and Moore	-	-	-	-	-	-	-
D. floridanus Marsh	-	-	-	-	-	-	*
D. mississippiensis Marsh	360	-	-	-	-	-	*
D. pallidus Herrick	-	-	-	-	-	-	-
Eucyclops spp. Claus	-	-	-	-	-	-	-
Mesocyclops edax (S. A. Forbes)	1,080	1,030	210	330	280	1,780	230
Tropocyclops prasinus (Fischer)	-	*	210	-	140	*	230
Nauplii	9,900	17,640	3,090	3,440	19,620	24,850	5,820
Calanoid copepodids	180	410	-	-	-	-	-
Cyclopoid copepodids	2,520	4,720	1,650	890	5,190	9,590	3,420
Harpacticoida	-	-	-	-	-	-	-
Parasitic copepoda							
Ergasilus chautauquensis Fellows	-	-	-	-	-	-	-
Ergasilus spp. Smith	-	-	-	110	-	-	-

Taxa	Date / Time	5/4/79 1030	6/14/79 1545	7/27/79 1030	8/24/79 0900	9/20/79 1530	10/17/79 1600	12/11/79 1330
Rotifera								
Asplanchna spp. Gosse		3,360	2,260	410	110	*	3,200	230
Brachionus angularis Gosse		-	2,260	-	*	*	360	-
B. bidentata Anderson		-	-	-	-	-	-	-
B. budapestinensis Daday		-	-	-	-	-	-	-
B. calyciflorus Pallas		-	-	-	-	-	-	-
B. caudatus Barrios and Daday		-	1,440	-	-	-	-	-
B. havanaensis Rousselet		-	-	-	-	140	-	-
B. quanridentatus Hermann		-	-	-	-	-	-	-
B. urceolaris Muller		-	-	-	-	-	-	-
Collotheca spp. Harring		720	2,050	210	330	420	2,840	460
Conochiloides natans (Seligo)		-	-	-	-	-	-	-
Conochiloides spp. Hlava		180	410	10,520	2,000	840	710	110
Conochilus unicornis Rousselet		8,280	5,540	2[illegible],230	3,890	3,780	44,080	10,840
Dipleuchlanis propatula (Gosse)		-	-	-	-	-	-	-
Dipleuchlanis spp. de Beauchamp		-	-	-	-	-	-	-
Euchlanis spp. Ehrenberg		-	-	-	-	-	-	-
Filinia spp. Bory de St. Vincent		-	3,490	-	-	-	-	-
Gastropus stylifer Imhof		-	-	3,710	-	-	-	-
Hexarthra spp. Schmarda		-	210	-	1,780	840	360	-
Kellicottia bostoniensis (Rousselet)		1,980	*	-	-	-	1,420	4,450
Keratella cochlearis (Gosse)		180	9,020	4,130	220	140	360	2,850
K. crassa Ahlstrom		2,520	210	620	220	140	12,780	5,700
K. earlinae Ahlstrom		-	1,640	-	-	-	*	-
K. valga (Ehrenberg)		-	-	-	-	-	*	-
Lecane spp. Nitzsch		-	-	-	-	-	-	-
Monostyla spp. Ehrenberg		-	-	-	-	-	-	-
Notommata spp. Ehrenberg		-	-	-	-	-	-	-
Platyius patulus (Muller)		-	-	-	-	-	-	-
P. quadricornis (Ehrenberg)		-	-	-	-	-	-	-
Ploesoma hudsoni (Imhof)		-	-	-	-	-	-	-
P. truncatum (Levander)		-	210	830	220	-	5,330	-
Polyarthra spp. Ehrenberg		990	3,490	620	560	-	4,970	4,220
Pompholyx sulcata Hudson		-	-	-	-	-	-	-
Ptygura spp. Ehrenberg		-	-	-	-	-	-	-
Sinantherina Bory de St. Vincent		-	-	-	-	-	-	-
Synchaeta spp. Ehrenberg		900	1,030	620	-	-	3,910	2,400
Trichocerca cylindrica (Imhof)		-	-	-	14,000	4,900	13,850	-
Trichocerca spp. Lamarck		-	1,440	5,160	330	280	1,420	110
Trichotria spp. Bory de St. Vincent		-	-	-	-	-	-	-
Bdelloid rotifers		-	-	-	110	140	-	-
Miscellaneous groups								
Chaoborus spp. Lichtenstein		-	-	*	*	*	-	-
Chironomids		-	-	-	-	-	-	-
Ostracoda		-	-	-	-	-	-	-
Tardigrada		-	-	-	-	-	-	-
Total number of taxa observed		23	28	19	23	21	27	22
Total number of individuals per cubic meter		45,930	62,810	64,170	33,760	38,810	149,580	42,890

APPENDIX D-4

Temporal variation in benthic invertebrate standing stock at stations in and downstream from West Point Reservoir, 1978

CH-12 (02338500) Chattahoochee River at U.S. Highway 27, at Franklin, Ga., 1978

[*, Organisms per square meter of bottom material; †, organisms per square meter of artificial substrate]

Date Time	7/13/78 0800*	8/17/78 1440†	9/15/78 [illegible]0†
Arthropoda			
Insecta			
Diptera			
Ablabesmyia Johannsen	517	-	-
Brillia Kieffer	-	-	-
Cricotopus Van der Wulp	1250	-	192
Endochironomus Kieffer	-	-	-
Eukiefferiella Thienemann	86	-	-
Glyptotendipes Kieffer	-	-	-
Hemerodromia Meigen	86	-	36
Limnochironomus Kieffer	-	12	-
Parachironomus Lenz	-	-	-
Phaenopsectra Kieffer	43	-	-
Polypedilum Kieffer	215	-	42
Psectrocladius Kieffer	-	-	-
Rheotanytarsus (Bause)	344	-	1164
Simulium Latreille	517	-	456
Stenochironomus Kieffer	172	-	-
Tanytarsus Van der Wulp	-	-	-
Ephemeroptera			
Stenacron Jensen	473	-	-
Stenonema Traver	-	-	186
Tricorythodes Ulmer	3096	-	312
Trichoptera			
Cheumatopsyche Wallengren	-	-	-
Cyrnellus fraternus Banks	-	366	-
Hydropsyche Ross	688	-	624
Hydroptila Dalman	-	-	-
Coleoptera			
Ancyronyx variegata Erichson	-	-	-
Stenelmis Dufour	-	-	-
Annelida			
Oligochaeta			
Naididae, unknown genus	86	-	6
Unknown family, unknown genus	-	-	-
Aschelminthes			
Nematoda			
Unknown family, unknown genus	-	-	-
Bryozoa			
Ectoprocta			
Phylactolaemata			
Plumatella Linnaeus	-	-	-
Mollusca			
Gastropoda			
Basommatophora			
Ancylidae, unknown genus	-	-	-
Pelecypoda			
Heterodonta			
Corbicula manilensis Philipp	-	-	-
Eulamellibranchia			
Unionidae, unknown genus	-	-	-
Playthelminthes			
Turbellaria			
Tricladida			
Planariidae, unknown genus	-	-	-
Total number of taxa observed	13	2	9
Total number of individuals per square meter	7573	378	3018

CH-10 (02338710) Chattahoochee River at State Highway 219, near LaGrange, Ga., 1978

[Organisms per square meter of artificial substrate]

Date Time	7/12/78 1400	8/16/78 1350	9/13/78 1300
Arthropoda			
Insecta			
Diptera			
Ablabesmyia Johannsen	-	-	6
Brillia Kieffer	-	-	-
Cricotopus Van der Wulp	-	-	-
Endochironomus Kieffer	-	-	-
Eukiefferiella Thienemann	-	-	-
Glyptotendipes Kieffer	6	6	-
Hemerodromia Meigen	-	-	-
Limnochironomus Kieffer	-	12	-
Parachironomus Lenz	-	-	-
Phaenopsectra Kieffer	-	-	-
Polypedilum Kieffer	-	-	6
Psectrocladius Kieffer	-	-	-
Rheotanytarsus (Bause)	-	-	-
Simulium Latreille	-	-	-
Stenochironomus Kieffer	-	-	-
Tanytarsus Van der Wulp	-	-	-
Ephemeroptera			
Stenacron Jensen	-	-	-
Stenonema Traver	-	-	-
Tricorythodes Ulmer	-	-	-
Trichoptera			
Cheumatopsyche Wallengren	-	-	-
Cyrnellus fraternus Banks	372	-	234
Hydropsyche Ross	-	-	-
Hydroptila Dalman	-	-	-
Coleoptera			
Ancyronyx variegata Erichson	-	-	-
Stenelmis Dufour	-	-	-
Annelida			
Oligochaeta			
Naididae, unknown genus	-	-	-
Unknown family, unknown genus	-	-	-
Aschelminthes			
Nematoda			
Unknown family, unknown genus	-	-	-
Bryozoa			
Ectoprocta			
Phylactolaemata			
Plumatella Linnaeus	27,000	-	-
Mollusca			
Gastropoda			
Basommatophora			
Ancylidae, unknown genus	-	-	-
Pelecypoda			
Heterodonta			
Corbicula manilensis Philipp	-	-	-
Eulamellibranchia			
Unionidae, unknown genus	-	-	-
Playthelminthes			
Turbellaria			
Tricladida			
Planariidae, unknown genus	-	-	-
Total number of taxa observed	3	2	3
Total number of individuals per square meter	27,378	18	246

CH-07 (02338720) Chattahoochee River (city of LaGrange intake), near LaGrange, Ga., 1978

[Organisms per square meter of artificial substrate]

Date Time	7/12/78 1500	8/17/78 0940	9/13/78 1530
Arthropoda			
Insecta			
Diptera			
Ablabesmyia Johannsen	12	-	-
Brillia Kieffer	-	-	-
Cricotopus Van der Wulp	6	-	-
Endochironomus Kieffer	-	-	-
Eukiefferiella Thienemann	-	-	-
Glyptotendipes Kieffer	30	-	-
Hemerodromia Meigen	-	-	-
Limnochironomus Kieffer	120	252	-
Parachironomus Lenz	-	6	-
Phaenopsectra Kieffer	-	-	-
Polypedilum Kieffer	6	-	-
Psectrocladius Kieffer	-	-	-
Rheotanytarsus (Bause)	-	-	-
Simulium Latreille	-	-	-
Stenochironomus Kieffer	-	-	-
Tanytarsus Van der Wulp	-	-	-
Ephemeroptera			
Stenacron Jensen	-	-	-
Stenonema Traver	-	-	-
Tricorythodes Ulmer	-	-	-
Trichoptera			
Cheumatopsyche Wallengren	-	-	-
Cyrnellus fraternus Banks	246	438	-
Hydropsyche Ross	-	-	-
Hydroptila Dalman	-	-	-
Coleoptera			
Ancyronyx variegata Erichson	-	-	-
Stenelmis Dufour	-	-	-
Annelida			
Oligochaeta			
Naididae, unknown genus	-	6	-
Unknown family, unknown genus	-	-	-
Aschelminthes			
Nematoda			
Unknown family, unknown genus	-	-	-
Bryozoa			
Ectoprocta			
Phylactolaemata			
Plumatella Linnaeus	180,000	126,000	-
Mollusca			
Gastropoda			
Basommatophora			
Ancylidae, unknown genus	-	-	-
Pelecypoda			
Heterodonta			
Corbicula manilensis Philipp	-	-	-
Eulamellibranchia			
Unionidae, unknown genus	-	-	-
Playthelminthes			
Turbellaria			
Tricladida			
Planariidae, unknown genus	-	-	-
Total number of taxa observed	7	5	0
Total number of individuals per square meter	180,420	126,702	0

CH-03C (02339388) Chattahoochee River below coffer dam, above West Point Dam, 1978

[Organisms per square meter of artificial substrate]

Date Time	5/14/78 1200	7/10/78 1215	8/14/78 0950	9/13/78 1200
Arthropoda				
Insecta				
Diptera				
Ablabesmyia Johannsen	-	-	-	-
Brillia Kieffer	-	-	-	-
Cricotopus Van der Wulp	-	-	-	-
Endochironomus Kieffer	-	-	-	-
Eukiefferiella Thienemann	-	-	-	-
Glyptotendipes Kieffer	-	-	-	-
Hemerodromia Meigen	-	-	-	-
Limnochironomus Kieffer	2322	36	-	60
Parachironomus Lenz	-	18	-	-
Phaenopsectra Kieffer	-	-	-	-
Polypedilum Kieffer	-	6	-	6
Psectrocladius Kieffer	-	-	-	-
Rheotanytarsus (Bause)	6	-	-	-
Simulium Latreille	-	-	-	-
Stenochironomus Kieffer	-	-	-	-
Tanytarsus Van der Wulp	12	-	-	-
Ephemeroptera				
Stenacron Jensen	-	-	-	-
Stenonema Traver	-	-	-	-
Tricorythodes Ulmer	-	-	-	-
Trichoptera				
Cheumatopsyche Wallengren	-	-	-	-
Cyrnellus fraternus Banks	-	186	-	54
Hydropsyche Ross	-	-	-	-
Hydroptila Dalman	-	-	-	-
Coleoptera				
Ancyronyx variegata Erichson	-	-	-	-
Stenelmis Dufour	-	-	-	-
Annelida				
Oligochaeta				
Naididae, unknown genus	-	-	-	-
Unknown family, unknown genus	144	-	-	-
Aschelminthes				
Nematoda				
Unknown family, unknown genus	-	-	-	-
Bryozoa				
Ectoprocta				
Phylactolaemata				
Plumatella Linnaeus	-	24,000	-	-
Mollusca				
Gastropoda				
Basommatophora				
Ancylidae, unknown genus	-	-	-	-
Pelecypoda				
Heterodonta				
Corbicula manilensis Philipp	-	-	-	-
Eulamellibranchia				
Unionidae, unknown genus	-	-	-	-
Playthelminthes				
Turbellaria				
Tricladida				
Planariidae, unknown genus	-	-	-	-
Total number of taxa observed	4	5	0	3
Total number of individuals per square meter	2,484	24,246	0	120

CH-01A (02339500) Chattahoochee River at West Point, Ga., 1978

[*, Organisms per square meter sample of bottom material;
†, organisms per square meter of artificial substrate;
#, data are mean (n=3) of cross-sectional sampling]

Date Time	4/09/78 1530†	5/14/78 1645*	6/09/78 1415*#	7/09/78 1500†	8/13/78 1400*	9/14/78 1200*
Arthropoda						
Insecta						
Diptera						
Ablabesmyia Johannsen	-	-	-	-	-	-
Brillia Kieffer	-	-	-	6	-	-
Cricotopus Van der Wulp	176	-	-	210	-	-
Endochironomus Kieffer	11	-	43		-	-
Eukiefferiella Thienemann	-	-	-		-	-
Glyptotendipes Kieffer	-	-	-	6	-	989
Hemerodromia Meigen	44	-	-	6	-	989
Limnochironomus Kieffer	-	-	-	18	-	215
Parachironomus Lenz	-	-	-	6	-	-
Phaenopsectra Kieffer	-	-	-	-	-	-
Polypedilum Kieffer	44	43	-	1,524	-	7,267
Psectrocladius Kieffer	-	-	-	-	-	-
Rheotanytarsus (Bause)	-	-	-	324	-	129
Simulium Latreille	-	-	-	66	-	-
Stenochironomus Kieffer	-	-	-	-	-	-
Tanytarsus Van der Wulp	-	-	-	-	-	-
Ephemeroptera						
Stenacron Jensen	-	-	-	-	-	-
Stenonema Traver	-	-	-	12	-	43
Tricorythodes Ulmer	-	-	-	-	-	-
Trichoptera						
Cheumatopsyche Wallengren	-	-	-	4,002	-	989
Cyrnellus fraternus Banks	-	-	-	-	-	387
Hydropsyche Ross	-	-	-	-	-	-
Hydroptila Dalman	-	-	-	-	-	-
Coleoptera						
Ancyronyx variegata Erichson	-	-	-	6	-	-
Stenelmis Dufour	-	-	-	-	-	-
Annelida						
Oligochaeta						
Naididae, unknown genus	11	-	43	708	-	344
Unknown family, unknown genus	-	-	-	-	-	-
Aschelminthes						
Nematoda						
Unknown family, unknown genus	-	-	-	-	-	-
Bryozoa						
Ectoprocta						
Phylactolaemata						
Plumatella Linnaeus	-	-	-	-	-	-
Mollusca						
Gastropoda						
Basommatophora						
Anacylidae, unknown genus	-	-	-	-	-	-
Pelecypoda						
Heterodonta						
Corbicula manilensis Philipp	-	86	-	-	-	-
Eulamellibranchia						
Unionidae, unknown genus	-	-	-	-	-	-
Playthelminthes						
Turbellaria						
Tricladida						
Planariidae, unknown genus	77	-	43	6	-	43
Total number of taxa observed	6	2	3	14	0	10
Total number of individuals per square meter	363	129	129	6,900	0	11,395

CH-018 (02339550) Chattahoochee River (city of Lanett intake) at Lanett, Ala., 1978

[*, Organisms per square meter sample of bottom material;
#, data are mean (n=3) of cross-sectional sampling]

Date Time	4/09/78 1730†	5/1[illegible]/78 1705*#	5/30/78 1130*#	7/09/78 1615*#	8/13/78 1530*	9/14/78 0930*
Arthropoda						
Insecta						
Diptera						
Ablabesmyia Johannsen	-	-	-	-	-	-
Brillia Kieffer	-	-	-	-	-	-
Cricotopus Van der Wulp	-	-	-	301	-	-
Endochironomus Kieffer	-	-	-	-	-	-
Eukiefferiella Thienemann	-	-	-	-	-	-
Glyptotendipes Kieffer	-	-	-	13	344	301
Hemerodromia Meigen	-	-	-	13	-	-
Limnochironomus Kieffer	-	-	-	56	-	43
Parachironomus Lenz	-	-	-	13	-	-
Phaenopsectra Kieffer	-	-	-	-	-	-
Polypedilum Kieffer	-	-	-	4,313	-	15,265
Psectrocladius Kieffer	-	-	-	-	-	-
Rheotanytarsus (Bause)	-	-	-	228	-	129
Simulium Latreille	-	-	-	288	-	-
Stenochironomus Kieffer	-	-	-	-	-	-
Tanytarsus Van der Wulp	-	-	-	-	-	-
Ephemeroptera						
Stenacron Jensen	-	-	-	-	-	-
Stenonema Traver	-	-	-	-	-	-
Tricorythodes Ulmer	-	-	-	-	-	-
Trichoptera						
Cheumatopsyche Wallengren	-	-	-	1,879	-	-
Cyrnellus fraternus Banks	-	-	-	-	-	-
Hydropsyche Ross	-	-	-	-	-	-
Hydroptila Dalman	-	-	-	-	-	-
Coleoptera						
Ancyronyx variegata Erichson	-	-	-	-	-	-
Stenelmis Dufour	-	-	-	13	-	43
Annelida						
Oligochaeta						
Naididae, unknown genus	-	-	-	-	-	-
Unknown family, unknown genus	-	-	-	873	-	516
Aschelminthes						
Nematoda						
Unknown family, unknown genus	-	-	13	-	-	-
Bryozoa						
Ectoprocta						
Phylactolaemata						
Plumatella Linnaeus	-	-	-	-	-	-
Mollusca						
Gastropoda						
Basommatophora						
Anacylidae, unknown genus	-	-	-	-	-	-
Pelecypoda						
Heterodonta						
Corbicula manilensis Philipp	77	430	159	13	-	-
Eulamellibranchia						
Unionidae, unknown genus	11	-	-	-	-	-
Playthelminthes						
Turbellaria						
Tricladida						
Planariidae, unknown genus	-	-	-	-	-	-
Total number of taxa observed	2	1	2	12	1	6
Total number of individuals per square meter	88	430	172	8,003	344	16,297

CH-01C (02339560) Chattahoochee River above junction of Long Cane Creek, near West Point, Ga., 1978

[*, Organisms per square meter sample of bottom material;
†, organisms per square meter of artificial substrate;
#, data are mean (n=3) of cross-sectional sampling]

Date Time	4/09/78 1840†	5/14/78 1805*#	30/78 15*#	7/09/78 1720*#	7/09/78 1730†
Arthropoda					
Insecta					
Diptera					
Ablabesmyia Johannsen	-	-	-	-	-
Brillia Kieffer	-	-	-	-	-
Cricotopus Van der Wulp	-	-	-	-	24
Endochironomus Kieffer	-	-	-	-	-
Eukiefferiella Thienemann	-	-	-	-	-
Glyptotendipes Kieffer	-	-	-	-	18
Hemerodromia Meigen	-	-	-	-	-
Limnochironomus Kieffer	-	-	-	-	54
Parachironomus Lenz	-	-	-	-	-
Phaenopsectra Kieffer	-	-	-	-	-
Polypedilum Kieffer	-	-	-	-	1,776
Psectrocladius Kieffer	-	-	-	-	-
Rheotanytarsus (Bause)	-	-	-	-	48
Simulium Latreille	-	-	-	-	-
Stenochironomus Kieffer	-	-	-	-	-
Tanytarsus Van der Wulp	-	-	-	-	-
Ephemeroptera					
Stenacron Jensen	-	-	-	-	-
Stenonema Traver	-	-	-	-	-
Tricorythodes Ulmer	-	-	-	-	-
Trichoptera					
Cheumatopsyche Wallengren	-	-	-	-	1,266
Cyrnellus fraternus Banks	-	-	-	-	18
Hydropsyche Ross	-	-	-	-	-
Hydroptila Dalman	-	-	-	-	42
Coleoptera					
Ancyronyx variegata Erichson	-	-	-	-	-
Stenelmis Dufour	-	-	-	-	-
Annelida					
Oligochaeta					
Naididae, unknown genus	-	-	-	-	54
Unknown family, unknown genus	-	-	-	-	-
Aschelminthes					
Nematoda					
Unknown family, unknown genus	-	-	13	-	-
Bryozoa					
Ectoprocta					
Phylactolaemata					
Plumatella Linnaeus	-	-	-	-	-
Mollusca					
Gastropoda					
Basommatophora					
Ancylidae, unknown genus	-	-	-	-	-
Pelecypoda					
Heterodonta					
Corbicula manilensis Philipp	121	258	56	13	-
Eulamellibranchia					
Unionidae, unknown genus	11	-	-	-	-
Playthelminthes					
Turbellaria					
Tricladida					
Planariidae, unknown genus	-	-	-	-	-
Total number of taxa observed	2	1	2	1	9
Total number of individuals per square meter	132	258	69	13	3,300

APPENDIX D-5

Temporal variation in benthic algae standing stock collected from artificial substrates at a station downstream from West Point Reservoir, 1978

Page

CH-01A (02339500) Chattahoochee River at West Point, Ga., 1978

[standing crop in cells per centimeters squared. *, present in insufficient densities to establish accurate count]

TAXA	9/15/78	9/27/78	10/13/78
Chlorophyta			
Characium pringsheimii A. Braun	129	-	-
Cosmarium sp.	-	25	-
Monoraphidium arcuatum (Korshikov) Hindak	-	-	100
M. contortum (Thuret) Komarkova-Legnerova	-	37	-
M. griffithii (Berkeley) Komarkova-Legnerova	129	-	-
M. saxatile Komarkova-Legnerova	-	25	-
Oedogonium sp.	*	*	-
Protoderma viride Kuetzing	151	-	-
Scenedesmus opoliensis Richter	-	-	*
S. quadricauda (Turpin) Brebisson	-	62	200
Schroederia setigera (Schroeder) Lemmermann	-	12	-
Staurastrum cf chaetocerus (Schroeder) G. M. Smith	*	37	-
Unidentified Filaments	194	-	-
Bacillariophyta			
Achnanthes minutissima Kuetzing	2,049	4,695	41,500
Achnanthes sp.	22	-	-
Cocconeis diminuta Pantocsek	-	*	-
Cyclotella Kuetzingiana Thwaites	*	-	-
C. Meneghiniana Kuetzing	*	-	-
C. pseudostelligera Hustedt	*	*	*
C. stelligera Cleve and Grunow	*	-	*
Cymbella tumida (Brebisson) Van Heurck	15	-	-
Cymbella sp.	-	*	-
Eunotia pectinalis (O. F. Mueller?) Rabenhorst	15	*	-
Fragilaria cf capucina Desmazieres	-	-	*
Frustulia rhomboides (Ehrenberg) DeToni	-	*	-
Gomphonema angustatum (Kuetzing) Rabenhorst	4,163	6,999	-
G. angustatum var. citera (Hohn and Hellerman) Patrick	-	1,055	-
G. gracile Ehrenberg	108	192	15,500
G. grunowii Patrick	173	1,246	-
G. parvulum (Kuetzing)	-	96	45,300
Gomphonema sp.	-	-	800
Melosira granulata (Ehrenberg) Ralfs	43	50	-
M. italica (Ehrenberg) Kuetzing	-	62	300
Navicula capitata var. hungarica (Grunow) Ross	15	-	-
N. exigua Gregory	15	12	-
N. symmetrica Patrick	15	-	-
Nitzschia linearis (Agardh) W. Smith	15	-	-
Pinnularia sp. Ehrenberg	15	-	-
Synedra radians Kuetzing	-	-	3,900
S. rumpens var. familiaris (Kuetzing) Hustedt	216	1,602	43,700
Chrysophyta			
cf Heterococcus arcticus Prescott	65	-	-
Ophiocytium Mucronatum (A. Braun) Rabenhorst	431	-	-
Pyrrophyta			
Glenodinium sp.	-	25	-
Euglenophyta			
Trachelomonas volvocina Ehrenberg	-	25	-
Cyanophyta			
Anabaena cf spiroides Klebahn	129	335	200
Anabaena sp.	-	12	-
Coccochloris elabens (Brebisson) Drouet and Daily	-	-	200
Oscillatoria sp.	-	12	-
Raphidiopsis curvata Fritsch and Rich	-	25	-
Schizothrix calcicola (Agardh) Gomont	2071	-	*
Total number of taxa	28	28	16
Total number of cells cm^2	10,178	16,641	151,700

APPENDIX D-6

Page

Fecal coliform and fecal strept[illegible]cci data collected at stations in and downstream from West Point Reservoir, 1978 and 1979

[Data expressed as number of colonies per 100 mL. NI, est[illegible]ated data based on a "non-ideal" number of colonies per membrane filter; for coliform (FC), less tha[illegible] 20 or greater than 60 colonies per filter; for fecal streptococci (FS), less than 20 or grea[illegible] than 100 colonies per filter; +, not required for this sampling trip; D, deleted beca[illegible]se of questionable results]

1978

Station	Type	April 9-18	April 30-May 14	May 30-June 6	July 9-13	August 13-18	August 27-31	Remarks
Chattahoochee River at U.S. Hwy. 27 at Franklin (02338500)	FC	300	5,100	40NI	57	480NI	48	CH-12
	FS	180	1,328	64NI	22	190NI	19	
	FC/FS	1.67	3.84	.63	2.59	2.53	2.47	
Chattahoochee River (LaGrange intake) nr LaGrange (02338720)	FS	36NI	21	7NI	0	0	0	CH-07
Yellowjacket Creek nr Wares Crossroads (02338919)	FS	4NI	5NI	17NI	2NI	3NI	0	Reservoir station CH-08A
Maple Creek near Gabbettville (02339385)	FS	46NI	2NI	1NI	2NI	0	5NI	Reservoir station (S-1)
Chattahoochee River below Wehadkee Creek above West Point (02339367)	FS	180	12NI	9NI	20NI	0	2NI	Reservoir station (S-2)
Wilson Creek near Pyne (02339199)	FS	96	17NI	13NI	8NI	0	2NI	Reservoir station (S-3)
Chattahoochee River near Pyne (02339050)	FS	88	6NI	17NI	0	0	1NI	Reservoir station (S-4)
Chattahoochee River at Birdsong Bridge Road, nr LaGrange (02339060)	FS	160	38	7NI	0	0	74NI	Reservoir station (S-5)
Chattahoochee River below coffer dam above West Point Dam (02339388)	FS	+	+	+	+	+	+	CH-03C
Chattahoochee River below West Point Dam (02339402)	FC							CH-2.5B high flow
	FS	+	+	+	+	+	+	
	FC/FS							
	FC							CH-2.5B low flow
	FS	+	+	+	+	+	+	
	FC/FS							
Chattahoochee River at West Point (02339500)	FC							CH-01A high flow
	FS	+	+	+	+	+	+	
	FC/FS							
	FC							CH-01A low flow
	FS	+	+	+	+	+	+	
	FC/FS							
Chattahoochee River at Lanett, Ala. (02339550)	FC							CH-01B high flow
	FS	+	+	+	+	+	+	
	FC/FS							
	FC							CH-01B low flow
	FS	+	+	+	+	+	+	
	FC/FS							
Chattahoochee River above Long Cane Ck. Junction nr West Point (01229560)	FC	88	D	260	56NI	890NI	160	CH-01C high flow
	FS	380	D	294	60NI	430	1,600	
	FC/FS	.23		.88	.93	2.10	.10	
	FC	270	116	80	72NI	84	[illegible]	CH-01C low flow
	FS	310	200	84	30NI	368	202	
	FC/FS	.87	.58	.95	2.4	.23	1.17	
Chattahoochee River at Langdale, Ala. (02339780)	FC							CH-01D high flow
	FS	+	+	+	+	+	+	
	FC/FS							
	FC							CH-01D low flow
	FS	+	+	+	+	+	+	
	FC/FS							

Fecal coliform and fecal streptococci data collected at stations in and downstream from West Point Reservoir, 1978 and 1979--Continued

[Data expressed as number of colonies per 100 mL. NI, estimated data based on a "non-ideal" number of colonies per membrane filter; for coliform (FC), less than 20 or greater than 60 colonies per filter; for fecal streptococci (FS), less than 20 or greater than 100 colonies per filter; +, not required for this sampling trip; D, deleted because of questionable results]

		1979							
Station	Type	April 30-May 5	June 11-15	July 23-27	August 20-24	September 16-20	October 14-17	December 9-13	Remarks
Chattahoochee River at U.S. Hwy. 27 at Franklin (02338500)	FC	260	120NI	1,600	1,975		390	20NI	
	FS	3,000NI	30NI	70NI	1,071	+	20NI	7NI	CH-12
	FC/FS	.09	4.00	22.86	1.84		19.00	2.86	
Chattahoochee River (LaGrange intake) nr LaGrange (02338720)	FS	9NI	2NI	3NI	3NI	+	0	+	CH-07
Yellowjacket Creek nr Wares Crossroads (02338919)	FS	+	+	+	+	+	+	+	Reservoir station CH-[illegible]
Maple Creek near Gabbettville (02339385)	FS	+	+	+	+	+	+	+	Reservoir station (S-1)
Chattahoochee River below Wehadkee Creek above West Point (02339367)	FS	+	+	+	+	+	+	+	Reservoir station (S-2)
Wilson Creek near Pyne (02339199)	FS	+	+	+	+	+	+	+	Reservoir station (S-3)
Chattahoochee River near Pyne (02339050)	FS	+	+	+	+	+	+	+	Reservoir station (S-4)
Chattahoochee River at Birdsong Bridge Road, nr LaGrange (02339060)	FS	+	+	+	+	+	+	+	Reservoir station (S-5)
Chattahoochee River below coffer dam above West Point Dam (02339388)	FS	1NI	1NI	5NI	1NI	+	0	+	CH-03C
Chattahoochee River below West Point Dam (02339402)	FC	8NI	2NI	22	2NI	15NI	77	2NI	CH-2.5S
	FS	30	2NI	80NI	3NI	11NI	54	15NI	high flow
	FC/FS	.27	1.00	.28	.67	1.36	1.43	.13	
	FC						3NI	1NI	CH-2.5S
	FS	+	+	+	+	+	2NI	3NI	low flow
	FC/FS						1.50	.33	
Chattahoochee River at West Point (02339500)	FC	20	3NI	2NI	2NI	20	2NI	3NI	CH-01A
	FS	56	10NI	11NI	20	25	23	14NI	high flow
	FC/FS	.36	.30	.18	.10	.80	.09	.21	
	FC						37	18NI	CH-01A
	FS	+	+	+	+	+	49	14NI	low flow
	FC/FS						.76	1.29	
Chattahoochee River at Lanett, Ala. (02339550)	FC	41	7NI	10	23NI	41	61	10NI	CH-01B
	FS	79	13NI	140	21	225	25	23NI	high flow
	FC/FS	.52	.54	.07	1.10	.18	2.44	.43	
	FC						216	120	CH-01B
	FS	+	+	+	+	+	53	15	low flow
	FC/FS						4.08	8.00	
Chattahoochee River above Long Cane Ck. junction nr West Point (01229560)	FC	37	14NI	58	19	370	390	17NI	CH-01C
	FS	115	6NI	76	100NI	500	193	93	high flow
	FC/FS	.32	2.33	.76	.19	.74	2.02	.18	
	FC						66	21	CH-01C
	FS	+	+	+	+	+	22	6NI	low flow
	FC/FS						3.00	3.50	
Chattahoochee River at Langdale, Ala. (02339780)	FC	18	23	480	28	870NI	3NI	107	CH-01D
	FS	80	24	109	43NI	930	27NI	50NI	high flow
	FC/FS	.23	.96	4.40	.65	.09	.11	2.14	
	FC						21	47	CH-01D
	FS	+	+	+	+	+	32	6NI	low flow
	FC/FS						.66	7.83	

APPENDIX E

Bottom material data

APPENDIX E-1

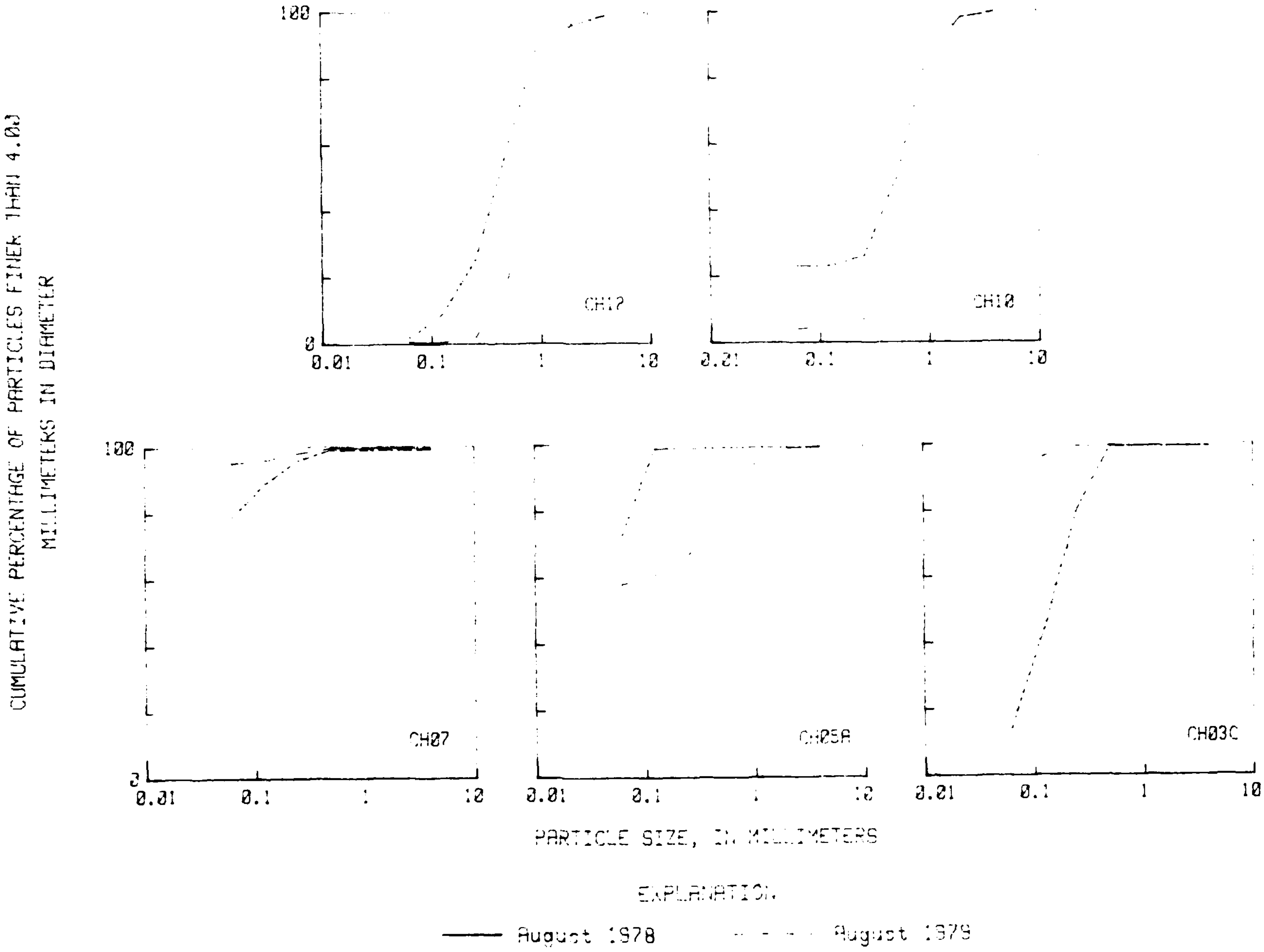
Particle-size distribution of bottom material from stations in and downstream from West Point Reservoir, 1978 and 1979

Particle-size distribution of bottom material from stations in and downstream from West Point Reservoir, 1978 and 1979

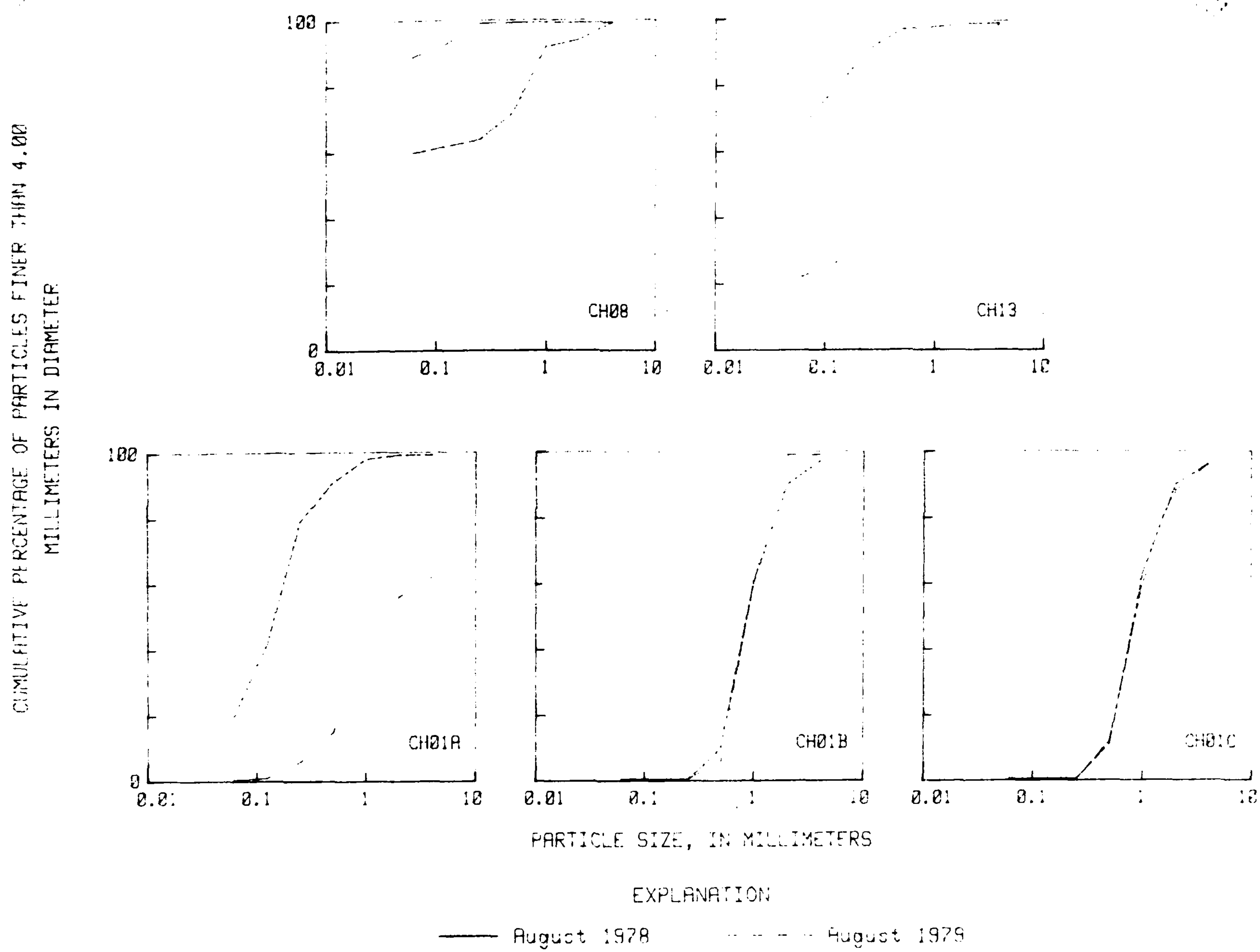
Range of particle size (mm)		Particle-size distribution, in percent									
		Reservoir stations							River stations		
		CH-12	CH-10	CH-07	CH-08	CH-05A	CH-13	CH-03C	CH-01A	CH-01B	CH-01C
Very fine gravel fraction 2.00 - 4.00	1978	2	2	0	0	1	9	0	5	0	8
	1979	2	3	1	1	0	1	0	0	7	6
Sand fraction 1.00 - 1.99	1978	18	13	0	0	4	16	0	13	38	28
	1979	4	10	0	7	0	1	0	2	30	27
.50 - .99	1978	59	53	0	0	15	17	0	28	54	48
	1979	33	38	0	20	0	1	1	6	50	52
.25 - .49	1978	18	24	2	1	12	16	1	10	6	12
	1979	34	23	4	8	1	6	19	13	10	11
.125 - .24	1978	2	2	2	6	6	15	3	6	0	0
	1979	16	3	7	2	8	12	36	36	0	0
.062 - .124	1978	0	1	1	4	3	4	2	0	0	0
	1979	7	0	10	2	18	11	30	22	0	0
Silt-clay fraction .000 - .061	1978	0	5	95	89	59	22	95	0	0	0
	1979	2	23	79	60	73	68	14	20	0	0

APPENDIX E-2

Graphs showing particle-size gradation curves of bottom material from stations in and downstream from West Point Reservoir, 1978 and 1979



Particle-size distribution of bottom material at mainstem reservoir stations in West Point Reservoir.



Particle-size distribution of bottom material at tributary and river stations in West Point Reservoir.

APPENDIX E-3

Nutrients, metals, oil and grease, and volatile solids concentrations on bottom material from stations in and downstream from West Point Reservoir, 1978 and 1979

Nutrients, metals, oil and grease, and volatile solids concentrations on bottom material from stations in and downstream from West Point Reservoir, 1978 and 1979

[Total organic carbon, total Kjeldahl nitrogen, total phosphorus, oil and grease, and volatile solids concentrations in milligrams per kilogram; metal concentrations in micrograms per gram. +, sample ruined during analysis; <, less than.]

		Constituent concentrations									
		Reservoir stations							River stations		
		CH-12	CH-10	CH-07	CH-08	CH-05A	CH-13	CH-03C	CH-01A	CH-01B	CH-01C
Nutrients											
Carbon, organic, total------------	1978	+	3,400	21,000	49,000	+	20,000	30,000	800	400	1,600
	1979	3,300	10,000	22,000	22,000	24,000	29,000	10,600	6,600	1,000	[illegible]
Nitrogen, Kjeldahl, total------------	1978	270	1,000	5,800	6,100	4,000	1,900	4,300	260	290	140
	1979	830	2,800	9,000	7,000	8,200	7,500	1,700	1,500	400	400
Phosphorus, total------------	1978	140	940	1,200	1,300	1,900	520	1,200	65	44	43
	1979	240	1,500	2,000	1,000	2,200	1,200	250	320	150	190
Metals											
Arsenic, total----	1978	1	1	1	1	2	<1	1	<1	1	1
	1979	1	<1	4	2	7	4	<1	1	<1	<1
Cadmium, total----	1978	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
	1979	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Chromium, total---	1978	20	10	30	20	30	10	20	10	10	10
	1979	10	20	40	20	50	20	10	10	<10	<10
Copper, total-----	1978	<10	<10	40	20	30	10	20	<10	<10	<10
	1979	<10	20	40	30	60	20	10	10	<10	<10
Iron, total-------	1978	11,000	8,100	31,000	22,000	29,000	14,000	21,000	5,800	5,700	5,600
	1979	5,400	8,700	24,000	3,700	25,000	20,000	7,500	10,000	1,800	2,900
Lead, total-------	1978	10	20	10	30	80	20	40	10	<10	<10
	1979	30	60	120	50	30	50	30	30	20	<10
Manganese, total--	1978	270	190	710	790	780	590	550	480	480	470
	1979	230	700	1,500	1,600	300	1,000	240	510	300	490
Mercury, total----	1978	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1
	1979	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1
Nickel, total-----	1978	<10	10	20	10	10	<10	<10	10	<10	<10
	1979	10	<10	30	<10	370	<10	<10	20	<10	<10
Zinc, total-------	1978	60	50	140	40	100	30	70	20	20	20
	1979	70	80	100	30	70	70	60	40	20	60
Other											
Oil and grease----	1978	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	1979	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Volatile solids---	1978	4,580	63,400	107,000	169,000	111,000	69,900	126,000	3,890	4,730	5,000
	1979	106,000	103,000	111,000	114,000	97,200	121,000	31,200	33,200	8,600	10,000

APPENDIX E-4

Chlorinated hydrocarbon concentrations on bottom material from stations in and downstream from West Point Reservoir, 1978 and 1979

Chlorinated hydrocarbon concentrations on bottom material from stations in and downstream from West Point Reservoir, 1978 and 1979

[Results in micrograms per kilogram. <, less than the detection limit]

		Reservoir stations							River stations		
		CH-12	CH-10	CH-07	CH-08	CH-05A	CH-13	CH-03C	CH-01A	CH-01B	CH-01C
Aldrin	1978	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	1979	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1
BHC, total	1978	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1
	1979	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1
Chlordane	1978	<1	13	210	56	140	16	130	<1	<1	<1
	1979	7	31	110	18	72	43	120	18	1	<1
DDD	1978	<.1	.8	<.1	5.7	<.1	1.8	12	<.1	<.1	<.1
	1979	1.2	3.0	11	1.9	7.0	5.1	15	8.4	<.1	<.1
DDE	1978	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1
	1979	.6	2.1	11	2.5	<.1	7.1	2.6	3.5	<.1	<.1
DDT	1978	<.1	<.1	32	<.1	<.1	.8	<.1	<.1	<.1	<.1
	1979	<.1	<.1	13	<.1	<.1	.7	4.5	2.8	<.1	<.1
Dieldrin	1978	<.1	.2	3.2	1.0	1.7	.7	1.5	<.1	<.1	<.1
	1979	.2	.4	1.5	.2	1.0	.4	2.3	.7	<.1	<.1
Endo-sulfur sulfate	1978	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1
	1979	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1
Endrin	1978	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1
	1979	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1
Heptachlor	1978	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1
	1979	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	.1	<.1
Heptachlor epoxide	1978	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1
	1979	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1
Mirex	1978	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1
	1979	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1
Methoxychlor	1978	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1
	1979	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1
Polychlorinated biphenyls	1978	2	34	740	190	530	84	430	<1	<1	<1
(PCB)	1979	10	42	140	34	85	54	150	59	<1	<1
Polychlorinated napthalenes	1978	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
(PCN)	1979	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Perthane	1978	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1
	1979	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1
Toxaphene	1978	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1
	1979	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1

APPENDIX F

Fish tissue da' ı

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Chlorinated hydrocarbon and metals concentrations in fish tissues from tributaries in West Point Reservoir, 1978 and 1979

[Chlorinated hydrocarbon concentrations in micrograms per kilogram; metal concentrations in micrograms per gram. +, insufficient sample for analysis; *, no recommended maximum concentration]

	Wehadkee Creek					Yellowjacket Creek					Recommended maximum concentration[1]
	Whole bass 1979	Whole catfish 1978	Whole catfish 1979	Bass fillet 1979	Catfish fillet 1979	Whole bass 1979	Whole catfish 1978	Whole catfish 1979	Bass fillet 1979	Catfish fillet 1979	
Chlorinated hydrocarbons											
Aldrin	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	100
BHC, total	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	100
Chlordane	7.0	15	220	<.1	6.0	21	210	280	26	220	100
DDD	<.1	8.5	20	<.1	1.7	3.4	34	21	.5	18	1,000
DDE	6.5	8.5	20	<.1	5.7	8.9	15	49	.8	35	1,000
DDT	<.1	<.1	<.1	<.1	<.1	1.0	<.1	8.3	.4	1.5	1,000
Dieldrin	<.1	.4	3.6	<.1	<.1	.8	2.9	13	1.0	5.8	100
Endosulfan	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	100
Endrin	<.1	<.1	<.1	<.1	<.1	<.1	<.1	1.0	<.1	.7	100
Heptachlor	<.1	<.1	<.1	<.1	<.1	<.1	<.1	1.6	<.1	1.7	100
Heptachlor epoxide	<.1	.5	1.3	<.1	<.1	<.1	<.1	<.1	<.1	<.1	100
Polychlorinated biphenyls (PCB)	37	2,600	290	<.1	19	46	3,800	340	39	170	500
Polychlorinated napthalenes (PCN)	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	*
Perthane	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	100
Toxaphene	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	100
Metals											
Arsenic, total	+	.2	<.1	+	+	<.1	<.1	<.1	<.1	<.1	*
Cadmium, total	+	.05	<.01	+	+	<.01	.05	<.01	<.01	<.01	200
Chromium, total	+	.5	.3	+	+	.8	.5	.4	<.1	.3	*
Lead, total	+	.38	.20	+	+	.20	.35	.20	10	.10	*
Mercury, total	+	<.1	<.1	+	+	<.1	<.1	<.1	<.1	<.1	*
Selenium, total	+	<1	<1	+	+	<1	<1	<1	<1	<1	*
Zinc, total	+	12	22	+	+	16	15	180	2	10	*

[1] National Academy of Sciences (1974)

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